FURTHER EXCAVATIONS AT MOHENJO-DARO

BEING AN OFFICIAL ACCOUNT OF ARCHÆOLOGICAL EXCAVATIONS AT MOHENJO-DARO CARRIED OUT BY THE GOVERNMENT OF INDIA BETWEEN THE YEARS 1927 AND 1931

Volume I Text

BY

E. J. H. MACKAY

FURTHER EXCAVATIONS AT MOHENJO-DARO

Being an official account of Archæological Excavations at Mohenjo-daro carried out by the Government of India between the years 1927 and 1931

By

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INTRODUCTION.

THIS book deals with the excavations that were made in the DK and SD Areas of Mohenjo-daro during the four seasons 1927-31 and thus continues the three volumes edited by Sir John Marshall, entitled "Mohenjo-daro and the Indus Civilization". In the former area I selected a part of the mound immediately adjacent to and east of the curious building with a large courtyard[1] that was excavated by Mr. Dikshit in 1924-25; and that building[2] together with the long trench that Mr. Dikshit named "E" formed the western and northern limits of the southern portion of our excavations. Following on this, we extended the area of operations towards the northern edge of the mound, at the same time carrying the excavation of a part of the southern portion to lower levels. Until and including the season 1926-27, the excavations at Mohenjo-daro were necessarily of a tentative character. Though they were extensive, no really deep digging was done, save for a trench here and there. After this preliminary phase, it seemed advisable to carry the excavation of a suitable area to such a depth as would help us to understand the growth of the city, and at the same time enable us carefully to examine the different levels with their associated objects, so that each might properly be compared with those below and above.

Our large scale excavations of the DK Area were begun on December 22nd, 1927; and throughout that season until March 9th, I had the valuable assistance of Mr. N. G. Majumdar, Assistant Superintendent of Archæology for Exploration, and of Mr. H. L. Srivastava, who was then a Scholar in the Department. In the following season, operations were resumed on October 24th, 1928, and terminated on March 26th, 1929. Again for a short time I had the aid of Mr. Majumdar, who eventually was deputed to work at Jhukar, some 16 miles from Mohenjo-daro, leaving Mr. Srivastava with me and also Mr. C. R. Roy, an anthropologist from Calcutta University, who remained throughout the season. Mr. Srivastava again assisted me during the seasons 1929-30 and 1930-31. I have to thank these gentlemen cordially for the great help that they afforded me; their duties were many and onerous. Thanks are also due to Mr. K. N. Puri, Excavation Assistant, and Mr. Devi Dayal Mathur for their share in the work;[3] for the many line drawings in this book I am indebted to the former. Mr. S. Mukerji, Mr. Nawab-ud-Din and Mr. Muhi-ud-Din are responsible for the plans, which they so ably prepared under many difficulties.

Mr. A. S. Hemmy, who comprehensively dealt with the weights in the preceding book on this site, in the present book reviews the more recently found weights from material supplied to him by myself. I have again to thank Khan Bahadur Muhammed Sana Ullah, Archæological Chemist in India, for analyses and much help and advice in the determination of materials, and also Dr. M. A. Hamid for the careful cleaning and repair of the copper and other objects, for ascertaining numerous weights, and for the chemical examination of many substances.

[1] See Marshall, *Mohenjo-daro and the Indus Civilization*, pp. 251-4.

[2] Further excavation has demonstrated that in all probability this building was a khan

[3] Mr. Devi Dayal Mathur served one season as Excavation Assistant.

Dr. L. Fermor, Director of the Geological Survey of India, has afforded me great assistance in the identification of various rocks and minerals, and Lieut.-Col. R. S. Sewell and Dr. B. Prashad of the Zoological Survey of India have rendered invaluable help in the identification of zoological remains and shells. Dr. B. S. Guha of the same department has again dealt with the skeletal material in a chapter in this book.

I have especially to thank Professor C. H. Desch, F.R.S., and Dr. E. S. Carey for the analyses of the copper and bronze and other metals appended to the chapter on Silver, Copper, Bronze and Lead Utensils and Other Objects. To Mr. Amarnath Gulati of the Cotton Technological Laboratory, Bombay, was entrusted the task of examining the textiles, and despite many difficulties owing to the minute quantity and extreme fragility of the material that was sent to him he has been able to identify most of the specimens. I cordially thank the Director General of Archæology in India for his efforts in seeing this book through the press. To my wife I am indebted for valuable help that she has given me in reading through my manuscript and correcting the proofs.

Labour.—The number of workers employed was at times as many as 600, the majority of them inhabitants of the villages around, who returned home at night or else made themselves booths of tamarisk and grass in the vicinity of the excavations. A number of Brāhūis were also employed, who came from as far off as Kalāt in Balūchistān. We found them to be exceptionally good workers and of stronger physique than the Sindhis. A sprinkling of Balūchis proved to be intermediate between the Sindhis and Brāhūis in their powers of work.

System of Levelling.—In order that our deep digging might be satisfactorily carried out, an extensive system of levelling was necessary. The levels of every building and of every well were therefore taken, especial attention being paid to door-sills and pavements as being for purposes of stratification the most important parts of a building. In addition, both the locus and level of *every* object found, whether it was regarded at the time as important or not, were noted in order not only to correlate each object with the building in which it was found, but also to facilitate the study of the development of art and technique. As some thousands of objects were unearthed in the sections that we excavated, it may be thought that this procedure was unnecessarily laborious. This, however, was not the case. The levelling instruments were set up early in the morning and remained in position all day ; and it was quite a simple matter to take the level of each object directly it appeared.

There are, however, limitations to the deductions to be drawn from the levels at which objects are found. For instance, if a jar or a seal lies either below or at some distance above a pavement or door-sill, it is difficult to decide to what period it belongs. We, therefore, adopted the rule that all objects found in or near the foundations of a building be assigned to the period of that building rather than to the previous phase, unless they actually rested on the remains of a pavement of earlier date ; for it is more than probable that they were dropped or left behind when the foundations were being made. This rule proved to be generally applicable, especially in the case of the better preserved houses, but exceptions occurred, as I shall point out below.

Dating of Buildings and Finds.—The dating of the houses and buildings to be described was the more dependent on careful levelling in that many of them, and we may say most of those of the Late Period, were built of bricks taken from buildings of earlier date. There may have been fashions in the sizes of

the bricks made at any given time, but they are difficult to determine. At Kish and other sites where sun-dried bricks were the rule, there was no possibility of their being got out whole for re-use elsewhere; the size and shape of the bricks in any particular building are, therefore, some criterion of its age. The open spaces seen in the plans of the DK Area (Pls. XVI–XX) were practically all depressions made in the search for bricks. And a stack of bricks against the eastern wall of the western wing of the Palace (Block 1) (Pl. XVIII) provided eloquent proof of the collection of bricks from the lower levels to build the houses of later date. This stack included bricks of various sizes, to many of which the mud mortar still adhered.

The great hollow, 15 ft. deep, where Blocks 1, 2 and 4 approach each other (Pl. XX) had been entirely filled up with broken jars of one particular type (Pl. IV, 17, 18); it had been used as a potter's dump when no more bricks were to be found there—a circumstance which explains why certain forms of pottery which we know to be of Late date were occasionally found in the Intermediate levels. Fortunately, these particular types of jar are easily assignable to their proper period, but the few seals that happened to be dropped into holes cannot as yet be so readily dated. It is only their association with the dumped potsherds that enables us to give them their correct age.

Method of Numbering the Buildings.—Before excavation, the ground was pegged out in squares of 100 feet, and it was from the nodal points that the buildings were planned. These points were re-marked as required at lower and lower levels with the help of a theodolite. We soon found, however, that we could not use these squares, even if subdivided, for the identification either of the findspots of the objects unearthed or of the positions of the rooms; for frequently we found ourselves working in rooms with high walls on all sides, so that it would have required a very elaborate and time-wasting process to correlate the positions of our finds with the squares. Accordingly we adopted the system of numbering rooms and walls.

As soon as two or three walls of a room in the uppermost occupation were cleared, a number was painted upon each, and these numbers were retained from the top of the mound to the lowest stratum that we excavated. Where walls were found not to rest on earlier masonry and had to be removed, the number was transferred to a wooden peg driven into the ground; and this peg was lowered carefully as we descended.[1] Even so, some difficulty was experienced in numbering the buildings in the various plans, for many of the houses were found to have been altered in size and arrangement in successive occupations. To avoid any confusion, it was thought better not to change the numbering of a house, even when some of its rooms were taken over by neighbouring buildings.

All the objects found were associated with the nearest peg or wall number; their find-spots can, therefore, be identified within narrow limits from the card record by reference to the plans, in which the Block (Bl.) number should first be found, then the House (Ho.) number, in the close vicinity of which the findspot lies, whether in room, courtyard, street or open space. To find a word to embrace all these last four situations is, however, impossible. The position of an object found in a street or lane is described, for instance, as "Bet. Bls. 7

[1] It is well to note here that wooden pegs cannot be employed in places where wood is scarce. In Mesopotamia, for instance, where the smallest pieces of wood are valued for use as tent-pegs, it would be unsafe to adopt this system.

and 8 (II) ", *i.e.*, in the close vicinity of House II, Block 8, and between Blocks 7 and 8.

For the whole of the work in the DK Area (G Section) one *bench level* was used; its position is marked in Pl. XX as on the northern wall of Rm. 27 of Ho. I, Bl. 9.[1] This bench level is *178·7 ft. above mean sea-level.* The bench-level used in the SD Area, *viz.*, the top of the north-eastern corner of the Great Bath Building, is *180·9 ft. above mean sea-level.*

Stratification.—From the beginning, it was our intention for convenience' sake to deal with the G Section of the DK Area in the strata tabled in the first book on the excavations at Mohenjo-daro, *i.e.*, three periods, Early, Intermediate and Late, each subdivided into three sub-periods or phases. The further knowledge derived from more extensive and deeper excavation and the close consideration of the new evidence obtained, together with the re-consideration of our former finds in the light of this new evidence, compel us, however, now to conclude that rightfully the so-called " Late III Phase " should be regarded as the uppermost stratum of the Intermediate Period. The evidence that the Late III Phase was in absolute continuity with the Intermediate I Phase, but that it was itself terminated by a complete evacuation of the city on the occasion of a great flood, is indubitable, as a perusal of these pages will show. It is the Late II Phase that marks the real beginning of the Late Period of the city's history.

There is also strong evidence that the Intermediate III Phase should really be regarded as the last phase of the Early Period. It was brought to an end by the earlier of the two floods of which we have evidence, and for a time the city lay deserted until with the beginning of the Intermediate II Phase the period of its greatest development and prosperity commenced.[2]

The various periods quite definitely cannot be regarded as separate " cultures ", for the results of our excavations all go to show that the inhabitants of the upper levels were of the same race and possessed the same civilization as those of the lower strata. We penetrated in one place (Block 7) (Pl. XVI) well below the average water-level in the soil and found there remains of the self-same culture; and though we did not even then reach virgin ground[3] owing to the very considerable rise in the water-level since ancient times, there is no reason to think that the people who founded the city were not of the same race as those who inhabited it throughout its history.

The table below states the average levels of the various occupations in the DK mound according to the original naming of the strata, which, it will be understood, cannot well be changed at this juncture:—

Late (Uppermost) Period.

Phase I(*a*).	Owing to denudation is very rarely represented in the DK Area. Ranges from 0·86 ft. above to 3·2 ft. below datum level.
Phase I(*b*).	Door-sills and pavements average 5 ft. below datum.
Phase II.	Do. average 7 ft. below datum.
Phase III.	Do. average 9·9 ft. below datum.

[1] Marked on the plan with a star.

[2] It should be remembered, however, that we know little of the early levels.

[3] I doubt whether it will ever be possible to reach the lowest levels without incurring very great expense.

Intermediate Period.

Phase I. Door-sills and pavements average 13 ft. below datum.

Phase II. Do. average 15·9 ft. below datum.

Phase III. Do. average 20·4 ft. below datum.

Early Period.

Phase I. Average level not yet certain, but probably about 24 ft. below datum.

Phase II. Average level not yet ascertained.

Phase III. Average level not yet ascertained.

The average levels given were worked out over large areas, taking into consideration also the levels of the drains in the streets, most of which received smaller channels from the houses on either side (Pls. III, c; XI, c; XLIV, d; etc.). As these drains could not have been above street-level at the period when they were in use, each provides a datum, as it were, with which to correlate the adjacent door-sills. These street drains, of course, sloped in order that the water might run away, but the drop rarely affects our general results. The actual levels of the door-sills and pavements, especially the former, have been all-important in the calculation of the levels of the different occupations. As we dug down, we left the majority of the door-sills high in the air, and it is readily recognisable in what periods the doors were bricked up and the house walls raised (Pls. XII, a; XXX, a, b; XXXV, g; XXXVII, c, e; XL, a, b, c; XLI, f). A most useful check on the levels of the various phases is provided by the masonry of the wells, on the outsides of most of which there are distinguishable the levels from which they were raised from time to time (Pls. XXVI, b; XXXV, b; XXXVI, a; XXXVII, d, g; XLI, b, f).

Where a room had never been paved or the brick floor had been removed to serve the same purpose at a higher level—a not uncommon occurrence—we were often able to decide the actual floor level from the footing on one or more sides of the room. Many of these footings were due to economy; the masonry below them cannot always be strictly described as foundations, for it mainly consisted of the lower portions of thick walls of earlier buildings and was not specially built. Even when an attempt was made to align the new wall with the older one beneath, it was not always entirely successful, and it is seldom difficult to see the join between the earlier and later masonry, very often as a prominent ledge. When using an old wall as a foundation, the mason was sometimes averse to placing his new wall direct upon the old. He preferred to spread a layer of mud along the top of the older wall, in some cases as much as 1·5 ins. thick. I have seen the same thing done by Egyptian masons of to-day, probably with the idea of obtaining an exact level for the new wall. At all events, at Mohenjo-daro this layer of soil often serves to show from what level the walls were raised. On the western side of Low Lane a layer of thin slices of burnt brick is seen in the wall of House II of Block 8; this layer decreases in thickness towards the north where it peters out and the new masonry of the Late III Phase rests directly on that of the previous occupation.

Contrary to our expectations, the ground levels of the houses of any one phase in the DK Area are strikingly uniform. They show that even in the Late Period this portion of the DK mound was fairly flat. Moreover, only buildings of

the Intermediate Period remained in the most denuded parts of the mound; for instance, in the south-eastern corners of Blocks 3 and 5 (Pl. XX), where the presence of wide streets on the east and south led to an unusual amount of weathering.

It will be noticed in the above table that there is a difference of roughly 3 ft. between the levels of the successive strata from the Late II down to the Intermediate II Phase, but that a greater distance separates the Intermediate II and III Phases. This increased difference is probably accounted for by a great flood that took place at this time; of this flood we have evidence in trenches cut in the low ground just beyond our excavations, a subject which is dealt with in the chapter on the City and its Environs, Duration and Date. Reference is also made to this flood in the descriptions of the various blocks.

Quite independently, Sir John Marshall had, I found, worked out the average levels of the Indus Valley buildings below the earliest Buddhist pavement of the Stūpa mound;[1] and his results are in very close accord with mine, although he had only a limited number of walls from which to obtain his data, whereas I was able to cover a very wide area. The only important difference between our two tables is that Sir John Marshall puts his sixth stratum (Intermediate III Phase) at 18 to 19 ft. below datum, whereas in the DK mound it averages 20·4 ft. below. It should be noticed that Sir John's datum level was the earliest Buddhist pavement, whereas that adopted in the DK Area was of necessity considerably lower. The Stūpa and the buildings beneath it were, moreover, at a very high level owing to the presence of a stratum of mud-brick, some 20 ft. thick, between the Early I and Intermediate III levels in the Stūpa mound. The important point, however, is not the actual levels so much as the distances of the various periods and sub-periods below the datum adopted in each case, and the intervals between them.

It should be clearly understood that there may have been a certain amount of overlapping of the levels of the various phases. We had no undisturbed ground or sterile layers to help us to distinguish between the various phases. Doubtless, many houses fell down and were re-erected at rather higher levels on the old walls that were only more or less roughly cleared for the purpose. In a continuous occupation with only comparatively brief desertions of the site in times of flood, the corresponding levels of different parts of the site would not, as far as I can see, have varied to any considerable extent.

It should also be noted that the whole site was built of burnt brick, a material that is not so liable to decay as sun-dried brick. Where houses are built of the latter material, mud is washed down from the walls by rain, which entails frequent repair and also raises the levels of the streets. For these reasons, I have given in the text the datum levels of all the important doorways and drains; though they may seem redundant in many cases, they will be of assistance to those who wish to make an analysis of the site for themselves.

[1] *Mohenjo-daro and the Indus Civilization*, p. 124. This lowest Buddhist pavement was *199 ft. above mean sea-level.*

CHAPTER I

THE CITY AND ITS ENVIRONS, DURATION AND DATE.

Environs of the City.

The geographical position of Mohenjo-daro and the general characteristics of the neighbouring country were fully described by Sir John Marshall in the first book on the site. But further and more detailed examination of the immediate surroundings has added considerably to our knowledge of the general history of the city and shed new light on the conditions in which its citizens lived, their avocations and mode of life.

In the search for possible fortifications, gates, and a city wall, early in 1931 we cut a deep trench through an irregular mound (Pl. VIII, H, 4),[1] situated about 100 yards beyond and slightly to the east of the point where the northern end of First Street debouches into the plain (Pl. I, 164). The extent of this mound just above the level of the plain is some 200 ft., E.-W., by 170 ft., N.-S., but it is, of course, much larger in area below the present surface of the alluvium. At its highest part which is now 13 ft. below datum, there is a depth of nearly 16 ft. of rubbish. This mound was found to consist solely of broken pottery, ashes and humus, of which the latter seems to be the product of decayed vegetable matter; there were no traces of masonry except deep down near the water-level in the soil.

This rubbish heap, for it is nothing else, provides yet further evidence that the sanitation of the city was carefully looked after. Though it was not so far removed from the houses as to comply with modern requirements, the idea of removing rubbish was clearly acted upon; and, moreover, it is quite possible that if the dump had been situated further away, it would not have been generally used. Perhaps the chief value of this rubbish heap from the archæologist's point of view is that it fixes the northern limit of the city during the Intermediate Period, when the latter was clearly at the zenith of its prosperity and importance. Several seals (Pl. LXXXII, Nos. 687–92), copper tablets, rings and bangles were found in the course of digging this trench (DK Area, H Section), which had doubtless been accidentally dropped and lost.

With a view to a more detailed exploration of the low ground outside the northern entrance of the city, I then had a number of trenches cut in a line at right angles to the periphery of the mound, to a distance of well over 500 feet from it and passing across the previously cut trench in the rubbish mound. In the course of this work we came across parts of buildings of good though now ruined masonry, but it was unfortunately impossible in several cases to ascertain the level of their foundations owing to the water-level being reached on January 13th, 1931, at a depth of 34·2 ft. below datum. In the limited view afforded by these trenches, we were unable to determine the purpose of these buildings, but quite clearly none of them had ever formed part of the walls or fortifications of the city. We did, however, find incontrovertible proof that this low ground

[1] This mound is denoted by the letter H.

outside the city was flooded on more than one occasion. In fact, the stratification of the soil in these trenches has proved illuminating. By it a considerable light has been thrown on the condition of the buildings that have been explored layer by layer in the neighbouring mound and elsewhere in the city.

In the second trench (Pl. VIII, H. 2), which is about 40 feet from the DK mound, the stratification from above downwards is as follows :—

(*a*) A band of disintegrated brick, reddish in colour, from ground level (19 feet below datum) to about 22 ft. below datum, *i.e.*, some 3 ft. thick.

(*b*) Sandy clay, deposited by flood; about 2 ft. thick; 22·4 ft. below datum.

(*c*) Disintegrated brick ; about 2 ft. thick.

(*d*) A layer of rubbish (broken brick, potsherds, ashes and humus), not quite so deep. The bottom of this layer declines towards the north at the rate of about 2 ft. in 24 ft.

(*e*) A thick bed of stiff clay, deposited by flood, roughly 7 ft. in thickness above water-level; its actual depth could not be ascertained owing to water-level being reached at 33·7 ft. below datum.

In this trench, then, we have definite evidence of two floods, one of which occurred at the level 22·4 ft. below datum, and the other earlier still. As the ground outside the city must always have been considerably lower than the street levels, these floods would hardly have penetrated into the streets themselves unless of course the water was very high. But that they seriously affected the buildings is proved by the subsidences revealed by our excavations. The walls of the Intermediate III Phase in some cases suffered badly from subsidence, and that this period was brought to an end by the saturation of the mound by percolation is proved by even such comparatively light structures as pavements having collapsed also.[1] The average level of the pavements and door-sills of the Intermediate III Phase is 20·4 ft. below datum, and if we allow 3 ft. or more of foundations below this level, the layer of soil between them and the lower band of clay, whose upper surface averages 26·7 ft. below datum, was not very considerable (about 3·3 ft.), and it must have been completely water-logged. Some of the walls of the Intermediate III Phase are, of course, probably built upon older masonry as foundations. This would not, however, affect the position at all, for the stability of the upper walls would depend on that of the walls below.

It would seem that on the re-occupation of the city after this first great flood, the large mound of rubbish referred to above came into being over a period corresponding with about three phases of occupation.

The second flood which deposited a layer of sandy clay,[2] some 2 ft. thick, we must correlate with the end of the Late III Phase, at which time the city seems to have been entirely deserted. After its re-occupation, the type of house erected was in general very poor and the art of building steadily deteriorated to the end of the period.

[1] It should be observed that burnt-brick masonry and brick débris act as a very effective sponge, in which moisture will creep up a long way above water-level.

[2] This deposit has naturally been less compacted by pressure than the older one.

The most northerly trench (Pl. VIII, H, 8)—the last to be cut—shows the second flood deposit superimposed upon the layer of rubbish. There are no layers of disintegrated brick, as this pit is 574 ft. away from the edge of the DK mound. Here the ground level is 22·6 ft. below datum and the band of water-laid sandy clay extends to 32 ft. below datum, *i.e.*, it is over 9 ft. thick. The refuse layer here is composed of clay containing numbers of potsherds, which suggests that water was still standing in this region when the city was re-occupied after the earlier flood, and that rubbish was shot here in the first place with the idea of filling up what was probably a water-filled hollow, from which material for brick-making had possibly been taken in earlier days.[1] In the neighbourhood of each village in the plains of modern India there is the "tank", whence came the clay for making the bricks required to build the village. What lies below the layer of rubbish in this trench we unfortunately could not ascertain, as water-level was reached at 34·2 ft. below datum. The variation of the water-level in the two pits described is accounted for, partly by the texture of the strata or even the caving-in of the sides of one of the pits, and partly by the slight difference in the time of excavation; in the early months of the year, the seepage level sinks fairly rapidly.

During the season 1928-29, similar trenches had been cut, but not carried down to water-level, in the low, flat ground south-east of the DK Area.[2] Here we first found a uniform stratum to a depth of 4·7 ft. of decomposed brick that had been washed down from the mound. Below this was a band of sandy clay, some 2 ft. in thickness, whose base averaged 26 ft. below datum, which, it should be noticed, fairly closely agrees in thickness and level with the upper deposit of water-laid clay found in the trenches on the northern side of the mound.

Similar bands of water-laid clay were also seen in the sides of a very large trench that we excavated during the season 1927-28 between the "L" mound and the large group of buildings on the southern slope of the Stūpa mound, for the purpose of discovering whether there were once any buildings between the two. The surface of the ground at this point was 22·2 ft. below datum,[3] and the uppermost stratum was a band of disintegrated brick, 1 ft. thick, beneath which was a layer of sandy clay, some 1 ft. 7 ins. in thickness. Below this was another thick layer of disintegrated brick, evidently washed down from the sides of the two mounds. And at 27·6 ft. below datum, we came upon a second flood deposit, at least 7 ft. thick, and probably more, of a very closely packed clay mixed with potsherds,[4] which clearly corresponds with the similar layer found in pit H, 8, of the northern line of trenches already described. The levels of both these strata of water-laid clay are lower than in the northern trenches, probably because there must always have been a certain amount of scouring here by the water that poured down from the mounds on either side. As the crow flies, this trench is situated some 900 yards from the trenches north of the DK Area and it is, therefore, of great value as providing corroborative evidence of the occurrence of at least two floods during the history of the city.

[1] I should mention here that excellent burnt bricks are still made at Mohenjo-daro from the alluvial soil.

[2] Between this mound and the Stūpa mound.

[3] 178·7 ft. above sea-level.

[4] This trench was not carried down to water-level.

To the north-east of the Great Court (Bl. 10 in Pl. VI) in the SD Area, where a small amount of excavation was done in an earlier season, a deep deposit of sandy clay was also found on the outer side of what may be a small fort on the city wall (Site No. 3 in Pl. I). This building has several features of unusual interest, including curious triangular-shaped projections, a 14 ft. thick outer wall, stairways leading up to rooms on a platform reared high upon a solid mud-brick core, and a staircase on the outside, whose descent we followed right down to the water-level in the soil. It was intended to examine this fortress-like structure and the curious *ghat*-like staircase outside it for decisive evidence in support of the suggestion of the late Mr. R. D. Banerji that the river, or a branch of it, washed the city wall at this point. Unfortunately, excavations had to be suspended just as we were working towards this point along the top of what we are inclined to think was a part of the city wall.[1] It is to be hoped that at some future date this important piece of excavation will be completed and the topography of this most interesting part of the site elucidated.

Meanwhile, the evidence for the presence of the river, or a branch of it, close beside the city in this neighbourhood is as follows :—

(1) The ground immediately west of the apparent fort with its descending staircase reaching to below the present water-level in the soil is of a different quality from the general alluvium in the neighbourhood. The respective characters of the two may be summarised thus :—

Apparent river bed.	*General alluvium.*
Grey.	Yellowish.
Very compact ; hard walking.	Loose in texture ; very soft going.
Surface remarkably smooth, almost shiny in places ; does not readily break up into loose dust.	Surface cakes after rain, but soon blisters with the crystallisation of salt and breaks up into a deep layer of fine dust.
Pampas grass.	Short jungle grass.

This strip of soil of roughly even width has been followed northwards from the camp to the Dokri-Hasan Wahn road which it crosses at a slant from N.-W. to S.-E., with the middle limb of a double bend almost coinciding with the road for a hundred yards or so, at a distance of 4½ miles from Dokri railway station. The curved banks are still quite perceptible, though much denuded by wind and weather. Between this point and the camp, branches and backwaters of the stream cross the modern Gillespie Wāh, which runs almost at right angles to the road, at four different points. In neither width nor the disposition of its various channels and branches does it follow that the river of the time of Mohenjo-daro was similar to the surface indications of the river of more recent days. But the Indus to-day swings backwards and forwards in the neighbourhood of the ancient city in most uncertain fashion, and an earlier bed is liable to be followed by the river itself, or a branch of it, after any summer's flood. The old river bed on which stand the bungalow and other buildings of the camp is comparatively narrow ; but in ancient days the river, if it ran here, may well have been considerably wider and more important.

[1] The chain of little mounds north of Site No. 3 in Pl. I.

It should be mentioned here that some deep dug-outs cut temporarily to house some of the labourers in the early days of the excavations at Mohenjo-daro also showed that the plain west of the Stūpa mound consists entirely of water-deposited clay. The usual bands of disintegrated brick present in the other trenches do not appear in the sides of any of these dug-outs, even near the surface of the ground.

(2) The disastrous subsidence of the buildings to the north and north-west of the Stūpa mound together with the northern end of Main Street (Pls. I; IV, f) points to the close neighbourhood of an easy channel for the approach of flood-water. Such would have been provided by the sweep of the early river bed in a harbour-like bay along the west of the city wall and round the northern part of the Stūpa and SD mounds. So great was this subsidence that as its cause the force of a stream rather than slow percolation is suggested.[1]

(3) Seals of Indus Valley workmanship have been and are being found in some numbers in the Sumerian cities. It is tempting to think that trade was carried on between the Indus Valley cities and distant Sumer partly at least by sail rather than solely by caravan across what may have been not wholly friendly territory. The sea-board must also have been considerably nearer in the days of prosperity of the ancient city than now, as it is known to have been at Ur in the third millennium B. C.

Until further data is secured I do not think it is desirable to correlate the floods at Mohenjo-daro with those of which evidence has been found by Woolley and others in Mesopotamia. The great flood at Ur occurred before Phases II and III of the Al-'Ubaid Period,[2] some considerable time apparently before the period of the earliest strata that we have reached at Mohenjo-daro. M. Watelin has, however, found traces of a flood at Kish, which Woolley definitely states cannot be correlated with the Ur flood, and which may have occurred at the same time as the second flood at Mohenjo-daro, that we date to the end of the Late III Phase.[3] The question of the synchronization of these floods is perhaps better left for the present to the meteorologist, though I venture to think that heavy rains may conceivably have helped to cause great floods simultaneously in the two great river valleys. Evidence there is of both countries suffering from unusually high floods in the same year sometime in the 14th century A. D.;[4] and in 1929, the Nile, Euphrates, Tigris and Indus all suffered the worst floods in a long period of years.

Late in the autumn of 1931 (November 3rd), we commenced the excavation of a chain of small mounds running N. to S. to the north of Site 3 in Pl. I. After a week's work with three gangs, we had partially uncovered what looked suspiciously like a portion of a city wall with a small gateway. But, most unfortunately, owing to the financial depression we were compelled to discontinue this interesting piece of excavation at the end of the month. It is impossible to give a satisfactory plan at this stage of the digging but a long line of wall of unusual thickness, some 30 ft., that was apparently constructed of burnt brick to the very core, certainly merits further examination

[1] For further particulars of this subsidence, see Chapter II on the SD Area.

[2] *Antiquaries Journal*, vol. X, pp. 339-40.

[3] See also Frankfort in *Archæology and the Sumerian Problem*, p. 49.

[4] See Sir John Marshall in *Mohenjo-daro and the Indus Civilization*, p. 6.

The Decline of the City.

The masonry of the Late Period, and especially of Phases Ib and Ia, is mostly poor as compared with that of the Intermediate Period ; in general the further we dug down into the mound, the better the masonry and the larger the buildings that we found. There appears to have been little room during the Late Period for expansion on the mounds themselves,[1] and any new houses built on the lower ground around would, of course, have been subject to the risk of inundation by the dreaded floods. Consequently, as the population grew and at the same time the rise in level of the city restricted its expansion, the larger houses were in many cases subdivided, probably to accommodate separate groups of the original family.[2] Towards the end of the Late Period, the whole of the southern portion of the G Section of the DK mound became an artisans' quarter, many of whose inhabitants were potters, for no less than six kilns, including one in the middle of Central Street, were found in this comparatively small area, and others have probably been destroyed by denudation. This quarter of Mohenjo-daro, if not the whole of the city, must by this time have declined greatly in social standing and organization, for it is difficult to imagine that the city authorities—if they still wielded any authority—would have allowed potters to practise their craft within the confines of the city. Throughout the East, the potter is put outside a city so that the smoke of his kilns shall not annoy other people. Moreover, fuel is more easily procurable there. We have, indeed, come upon a striking example of the decay of a once honourable city, the cause of which we suspect to be the vagaries of the Indus rather than pressure by invaders, of whose existence we have, in fact, little positive evidence.[3]

It does not follow that the floods of which there is evidence caused any great loss of life. But even two feet or so of water round the city annually for weeks at a time would soon have led to its evacuation by the wealthier classes ; for it would have been difficult to move in and out of the city, and the transport of goods would have been impossible without the aid of boats. Flood-water nearly reached the mounds of Mohenjo-daro in the summer of 1929,[4] and it may well have been an annual event towards the end of the Late Period. The poorer people, perhaps more attached to their homes, would naturally have remained behind and carried on as best they might ; to them it would have been no great hardship to wade in and out of the city at certain seasons of the year, as the *fellahīn* of Egypt used to do when the annual inundation of the Nile made little islands of their villages.

The Date and Duration of the City.

On the question of the interval of time that elapsed between the building of the earliest level that we have been able to reach and the final abandonment

[1] Reference to Pl. XX will show that though there was a certain amount of unoccupied space, it could not be built upon owing to the great holes made in the search for bricks. These large hollows would have collected seepage water, and though attempts were made in the Late Period to fill them up with pottery refuse, the task proved too great.

[2] This is often done in the East to-day.

[3] The skeletons found in the street between Blocks 10A and 11 and those on the staircase in Block 8A are thought to be those of people murdered by small parties of raiders from the heights of Balūchistān.

[4] A flood caused by the bursting of the Shyok ice dam still further raised the level of a river already swollen by excessive rains in Balūchistān.

of the city, it is at present impossible to be very definite, though the evidence available is rapidly accumulating. Recent discoveries by Dr. Frankfort at Tell Asmar in Mesopotamia show that the upper levels of Mohenjo-daro were probably contemporary with certain buildings which he has excavated and on very good evidence has attributed to the Dynasty of Akkad, *i.e.*, 2,500 B. C.[1] The principal object of interest to India found in those excavations is a cylinder seal, obviously of Indian workmanship, bearing the incised figures of elephant, rhinoceros, and gharial or fish-eating crocodile—animals that are peculiar to India and are not found in Mesopotamia.[2] With this seal, other objects apparently Indian in origin were pieces of bone inlay of a peculiar shape.[3] Very possibly, then, we shall have to amend our provisional dating of the upper levels of Mohenjo-daro, 2,750 B. C.,[4] to about 2,500 B. C. on the strength of Dr. Frankfort's finds until further evidence, which I have no doubt will be forthcoming from Mesopotamia, is available. But here it might be noted that, although seals of Indian origin are of almost frequent occurrence at the ancient Sumerian sites, only three seals of the characteristic cylindrical shape of the Sumerian seals have been found at Mohenjo-daro (No. 78 at the level −5·9 ft.; No. 376 at −11·8 ft.; and No. 488 at −14·5 ft.). All three, it will be observed, come from the upper strata, and no seals of this shape have, to my knowledge, been found at Harappā.

The dating of the lower levels is also brought within sight by a remarkably fortunate find. This is a fragment of a vessel of a greenish-grey stone (chlorite-schist) that was unearthed at the level 28·1 ft. below datum (Pl. CXLII, 45); it has an intricate matting pattern carved upon it that is exactly duplicated on a double jar found at Susa and dated to the Second Period of that site.[5] The dating of Susa II has, however, not been finally settled. C. J. Gadd would assign it to the " centuries between 3,000 and 2,600 B. C."[6] M. de Mecquenem dates it to c. 2,700 B. C.,[7] and M. Contenau between 3,000 and 2,800 B. C.[8] The mean of these dates is about 2,800 B. C.,[9] which in conjunction with the new dating for the uppermost levels allows some three hundred years between the uppermost and the lowest attainable levels of Mohenjo-daro.

It might be thought that a longer period of time is postulated by the many successive strata that have been laid bare between these limits. And the argument may be advanced that burnt-brick buildings would obviously last longer than those made of mud-brick. They probably would under favourable circumstances. But those who have seen the rapid crumbling of burnt brick under the action of salt, even after quite a small shower of rain, will readily realize what great damage water and damp can do to buildings so impregnated with

1 *Tell Asmar and Khafaje*, Oriental Institute, Univ. of Chicago.

2 *The Times*, March 26, 1932.

3 For these, see Frankfort in *Ann. Bibl. Indian Arch.*, 1932, pl. I (f).

4 *Mohenjo-daro and the Indus Civilization*, pp. 102-7.

5 Contenau. *Manuel d'Archéologie Orientale* (1927), p. 276, fig. 169. Several other specimens have been found at Kish. Field. *Antiquity*, 1933, pp. 84-5, pl. II.

6 *The Times*, Jan. 3, 1931.

7 *Antiquity*, Sept.-Dec., 1931, p. 340.

8 From a private communication.

9 Which is also the date attributed by Watelin to the specimens found at Kish.

salt as those of Mohenjo-daro.[1] The assignation, therefore, of roughly forty to fifty years to each phase is not, I think, an unduly cautious estimate.

It should be clearly understood that the city was not necessarily deserted between these various "occupations" or "phases", though we have strong evidence to show that it was temporarily abandoned at the close of the Intermediate III Phase and again at the end of the Late III Phase. Owing to the throwing out of rubbish from houses, to mud being washed down from the walls and roofs, to the decay of brickwork through the action of salt, and the deposit of alluvium by wind, a steady rise in the general level of the city took place throughout its occupation; and this necessitated the raising of the walls, floors and roofs whenever the difference between the floor level of the houses and of the streets outside became inconvenient. We have found nothing which would have served to prevent the inpouring of water from the streets into the houses at times of heavy rain; and examination of the average levels of the various strata will show that the inhabitants were in general spurred by discomfort to readjust their houses when the street level had risen some 2 ft. 8 ins.

[1] I have seen a brick crumble to powder the first fine day after rain, and the tops of walls are converted into a layer of dust within a week. This process goes on with every fall of rain and is already bringing about the filling up of the houses excavated in the first seasons of work upon the site. Salt may not, however, have been so prevalent at Mohenjo-daro in ancient days as it is now.

CHAPTER II.

SD AREA.

Between the Buddhist stūpa, with its surrounding monastic buildings, and the Great Bath,[1] a considerable stretch of ground which sloped upwards to the east presented interesting possibilities. Accordingly, in the late autumn of 1927, we began excavations there and in a comparatively short time a very large building was unearthed, which appears in Pl. VI as Block 1 and sections A-B and C-D. Following on this work, the unexcavated area to the north of the Great Bath was examined and a building of unusual interest (Pl. VI, Block 6) was discovered which seems from its nature to have been closely associated with the Great Bath. A tentative examination of the ground to the north and west of Block 6 showed the presence on it of Buddhist structures built upon already ancient Indus Valley buildings with material taken from others near by.

The bench mark[2] from which the levels in these excavations were determined was *180·9 ft. above mean sea-level, i.e.*, 2·2 ft. above the datum level employed for the DK Area. It would have been desirable, of course, to have used the same datum level for the two areas, but this course could not be adopted for the reason that the greater part of the complex of mounds forming the SD Area was definitely higher than the DK and other areas. As the mean sea-levels of these datum points are given, the levels in the two areas can easily be compared.

Block 1 (*Pls. II, a, c, d; VI; VII*).

Block 1 is separated from the Stūpa buildings by a well-defined street, that we have named Divinity Street, which is 6 ft. 9 ins. wide at its northern end and increases to 10 ft. 4 ins. wide at the other end.[3] The walls on either side of this street even now stand over 12 ft. high in places (Pl. II, a). A well-constructed drain runs a considerable distance along the eastern side and then crosses over to follow the western side of the street. This drain, whose channel averages 10 ins. wide by 1 ft. 8 ins. deep, slopes towards the north with a drop of 5·2 ft. in level.[4] It receives five tributaries from Block 1, but apparently none from the eastern side of the street, except through a lane, 4 ft. 8 ins. wide, that enters it at its northern end. In Divinity Street a seal, No. 701 (SD 3192; Pl. LXXXII), was found at the level −1·1 ft., and the white stone marble (SD 3215; Pl. LXXI, 8) at −1·5 ft. An alabaster pedestal (Pl. LXXI, 21) from the level +3·6 ft. should perhaps be regarded as not contemporanecus with the roughly built dwellings at that level.

[1] For descriptions of both, see *Mohenjo-daro and the Indus Civilization*, Chaps. IX and X.

[2] This bench mark was situated on the north-eastern corner of the Great Bath building.

[3] So called from the almost certain presence of a sacred building to the east of it, and the finding of the steatite figure of a horned deity at the level +1·7 ft. in the lane itself (Pl. LXXXII, 7). This figure is only 0·58 in. high.

[4] The base of its channel at the northern end is 4·1 ft. below datum.

Main Street to the west of Block 1 (Pl. III, a, c) will be separately described. On the north, this block is separated from the partially excavated Block 10 by a lane, 4 ft. wide, which had been partially demolished about the end of the Late Period ; and to the south of it there is an open space at the meeting of four streets.

Block 1 has a very complicated appearance in the plan in Pl. VI, for the reason that every wall that was excavated is shown, whatever its date. As none of the later walls have been removed, it has not been possible to make a separate plan for each level, as in the excavation of the Southern Portion of the DK Area. But to simplify matters, a separate plan has been prepared of the walls of Late date (Pl. VII), and it is to this plan that reference is made in describing the buildings.

Including the small strip at its northern end, this block was evidently one large building, averaging 230·7 ft. long by 78·5 ft. wide, for every part of it except the strip on the north was accessible from the entrance vestibule (55) on the east. Whether there was another main entrance from Main Street we cannot tell, owing to the great dilapidation of the wall on that side of the building. But it seems unlikely, as there is no entrance hall there similar to the many-doored apartment 55.

In view of its close proximity to the presumably sacred building that lies beneath the stūpa, I would suggest that Block 1 was once the residence of a very high official, possibly the high priest himself, or perhaps a college of priests, to which purpose, it will be seen, this important block was well adapted. This great structure, which we have named the Collegiate Building, was longer even than the Great Bath building across Main Street to the west and it must have been of exceptional importance. Not only was it of remarkable extent, but it was one single architectural unit, not a composite of several dependent units. Again, the fenestrated walls of the main court were obviously copied from those in the Great Bath building. And its well built outer walls, in some places over 4 ft. thick, which on account of their batter must have been even more massive in the lower levels, are obviously those of a building of unusual character which probably stood two or more storeys high. The objects found in this block, unfortunately, do not assist us very much in determining its purpose. A seal, No. 698 (SD 3058 ; Pl. LXXXII) was found at the level +0·1 ft. in the fenestrated court and an amuletic clay bulla (SD 3074 ; Pl. LXXI, 14) in room 18, 19 at +1·7 ft. An unfinished limestone statue (SD 2781 ; Pl. LXXI, 30–32) found in the S. W. corner of the fenestrated court (61) at the level +2·4 ft. was very probably in process of being carved when the building had to be abandoned owing to the flood which took place at the end of the Late III Phase. Other objects found in the same court at slightly higher levels are less ecclesiastical in character, and comprise a fine limestone mace-head (SD 2782 ; Pl. LXXI, 22), 3·2 ins. in diameter, a faience ball (SD 2705 ; Pl. LXXI, 9), and a gamesman (SD 3010 ; Pl. LIII, 59) of the same material.

By this time, the main court of this once important and dignified building was cluttered up with grain bins and other structures of very inferior masonry, cooking-places among them, of the people who re-occupied the city after the flood (Pl. II, d). Of this later period were the objects found in room 56 at the level +3·1 ft.—a black stone ball (SD 2715, a ; Pl. LXXI, 10), and gamesmen

of chalcedony (SD 2715; Pl. LIII, 58) and shell (SD 2703; Pl. LIII, 61) respectively. A fragment (SD 2722; Pl. LXXI, 25), 5·25 ins. long, of a large limestone bull with sockets for eyes, ears and horns, that was found at the high level +5·7 ft., can hardly have been made by the squatters of later date in the ruins of the city. It was more probably found when delving for bricks and would thus have been of earlier, but uncertain date. It may have been part of an image that adorned this large building in the days of its pre-eminence.

I would date this building, whose plan is seen in Pl. VII, to the Late Period, and its predecessor, whose walls are hatched in Pl. VI, as belonging to the Intermediate I Phase. Some few of the walls excavated appear even to date from the Intermediate II Phase. A careful comparison of the two plans shows that the arrangement of the building of the Late Period was by no means the counterpart of that of earlier days, when it seems to have been of some complexity. But so many points remain obscure that it is earnestly to be hoped that whenever the excavation of Mohenjo-daro is resumed all the later masonry will be removed and complete plans made of the earlier buildings of this block.

It is specially noteworthy that this block does not contain a well—at least, we have found no trace of one in its upper levels. The large wells, however, in the Great Bath Building and Block 6, just the other side of Main Street, would have served this building also. Both these wells, it will be noticed, were accessible from the street as well as from inside the buildings in which they were. The absence of a well in the Collegiate Building, together with the fact that during the latter end of the Late Period it was occupied by people of a poorer class, rules out, I think, any possibility that this building was itself sacred.

No less than four doorways, of which the narrowest was the standard 3 ft. 4 ins. in width, gave entrance to it from the east. The northernmost but one of these doors, *i.e.*, the one opening into room 55, was clearly the main entrance, not only in the Late III Phase, but also in the Intermediate I Phase, as is proved by a lower door-sill at the level 3 ft. below datum. The two southern doorways into the long passage 14, 35, 36 had both been blocked up at the re-occupation of the building in the Late II Phase, when apparently the narrower doorway at the northern end of the passage was made.[1]

The wide entrance from the open space to the south existed as early as the Intermediate II Phase, for we found a sill at the level 6·4 ft. below datum. This sill was raised some 2 ft. 6 ins. later; and the door was re-used in successive occupations, though the bricks of the later sills have disappeared.

On entering the building by its main door, the visitor in Late III days found himself in a spacious entrance hall (55), measuring 23 ft. by 14·5 ft. On his right, a wide doorway gave on to the large fenestrated court; in front of him was a suite of apartments—perhaps those of the head of the establishment—with possibly an audience chamber; and to his left, two doorways led to a smaller court, whence a large series of residential and public rooms on ground and upper floor, or floors, was reached. These three sections of the building present each so many features of interest as to merit separate description in considerable detail.

The large court in the northern part of the building was entered solely by the doorway, 4 ft. 8 ins. wide, from the entrance hall. Around three sides of the central open space (61, 66, 67), which measured some 33 ft. square, was

[1] The sill of this doorway was 4·6 ft. above datum.

a fenestrated wall, apparently a copy of the similar walls round the Great Bath. The piers between the fenestrations average 3 ft. by 2 ft. 7 ins. in section, and the openings range from 3 ft. 7 ins. to 4 ft. 2 ins. in width; and they must have presented a very fine cloistered effect. The western wall is slightly thicker than the other two and also stands somewhat higher, but the foundation-level of all three is about 3 ft. below the sills of the openings which average 4 ft. 3 ins. above datum.

The four corridors round this court were an average width of 6 ft. 8 ins., and all communicated directly with the court, save the one along its northern side which was cut off by a blank wall. This passage, however, was entered from the eastern cloister by a wide doorway. The stretches of pavement in these corridors and the court are somewhat puzzling. They range from 1 ft. 8 ins. to 2 ft. 7 ins. above datum, and some of them, notably those marked 59 and 68, appear to be remains of the original paving of the corridors, as their outlines are broken and their levels agree very closely. Three of these stretches of pavement are obviously complete and were laid to serve as washing places. They were drained by channels, 6·5 ins. wide by 6 ins. deep and 11·5 ins. wide by 7 ins. deep, into a main drain that passed beneath the pavement at the southern end of the eastern cloister to empty into the street drain in Divinity Street. Why these pavements should have been made in such conspicuous and asymmetrical positions is a problem. Their levels apparently date them to the same period as the court, but it seems more probable that they belonged to the previous period. Further excavation will be needed to solve this question.

We may safely assume that the court itself was paved, but no trace whatever of the brick flooring remained and it is probable that it was taken up for use elsewhere, perhaps for building the very roughly constructed circular bins and other structures in the court, all of which appear to be of later date (Pl. II, d). These structures are marked in the general plan in Pl. VI, but not in Pl. VII, as we did not wish to encumber it with detail.

The circular bin-like construction in the N. E. corner of the court, with a small doorway facing west, was slightly irregular in shape and an average of 5 ft. 2 ins. in diameter. It was built of bricks of several different sizes, evidently taken from buildings of earlier date. The larger bin to the west of it was 8 ft. 6 ins. in diameter inside and was very roughly constructed. A third bin, also circular, further towards the south-western corner of the court (Pl. II, d) was 4 ft. 3 ins. in diameter. Other structures of Late date found in this court included square bins, cooking-places (?), and two washing-floors (?), one at a slightly lower level than the other; they are shown in Pl. VI. These constructions, it will be noticed in the photograph, are obviously of later date than the court in which they were found.

The suite of apartments opposite to the main entrance was practically self-contained. It had its little private rooms, 44, 45, 46, off the large apartment 47, 48, 49, which perhaps served as an antechamber for those awaiting audience. It had its own bathroom (40), which was drained through an aperture in its southern wall by a channel, 1 ft. 4·5 ins. wide by 1 ft. 7 ins. deep, that ran out westwards to the large drain in Main Street. It had a private staircase (52), which was 3 ft. 7 ins. wide, leading to an upper floor where the sleeping quarters would probably have been situated. Two treads only remain of this staircase, each 8 ins. broad and 9·5 ins. high, and the lowest step was 2·6 ft. above datum,

which is also approximately the level of the ablution pavement. The paved room 37, 38 was, according to its level, in use at the same time as the suite of rooms just described, which was entered from it. The position of this large pavement and its drain with corbelled roof, four bricks thick,[1] calls for explanation and there seem to be two alternatives :—

(1) Room 44—small and secluded—may have been a shrine, the larger room leading to it being in the nature of a private chapel. The pavement 37, 38 would in that case have served for the ablutions of the worshippers before they entered the precincts of the shrine.

(2) It has been pointed out that the water required in this great building was probably obtained from the wells in the Great Bath building and Block 6. Though the outer wall has totally disappeared, as far as our excavations go, in the region of room 37, 38, a doorway over the outfall of the corbel-roofed drain into the Main Street channel would have been conveniently situated between the two possible sources of water. The water would probably have been brought in skins, as in modern India, and in room 37, 38 the water-carriers might have emptied their skins into the water-jars that served the establishment.

The doorway leading from the entrance hall 55 to the courtyard 41-3 presented an unusual feature, a door-stop, fashioned of two bricks inserted in the eastern jamb 11 ins. above the sill, which was 2·9 ft. above datum. This stop measured 6·5 ins. wide by 5·5 ins. high and projected 3·5 ins. from the jamb.

A staircase, 4 ft. 6·5 ins. wide, against the southern wall of this court probably led to sleeping quarters on an upper floor or floors, and to the roof. Seven treads of this staircase still remained, 8 ins. broad by 11·5 ins. high.[2] It is estimated from the length (9 ft.) of the base of this stairway that the whole flight would have reached a height of over 12 ft. A second stairway in room 33 immediately to the south was evidently rebuilt at some time, there being a 9 ins. thick layer of rubble between the earlier and later portions. The treads in both were 8 ins. broad by 9 ins. high, and the width, 4 ft. 2 ins., was the same. The lowest step of this stairway was 3·7 ft. above datum.

The southern portion of this fine building was most clearly residential, as there are pavements in several of the rooms that are labelled " domestic offices " by the drains that served them. These rooms were divided into three distinct blocks by two parallel passages running westwards from the long corridor on the eastern side of the building which was entered from Divinity Street by doors that were possibly students' entrances to this great establishment.

An exceptionally well-preserved pavement at the eastern end of room 12 was made of bricks, 10·25×5·5×2 ins. in size, laid in three courses. Its surface, polished by constant wear, was coated with the deep red deposit that we have learned is caused even to-day by perspiring bare feet.[3] The drainage from it ran out into Divinity Street by a small aperture in its eastern wall. The floor

[1] The channel measured 1 ft. 4·5 ins. wide by 1 ft. 7 ins. deep, and dropped 8 ins. from E. to W. Its bed at the east was 0·2 ft. below datum.

[2] The lowest tread was 4·7 ft. above datum.

[3] The level of this pavement was 1·8 ft. above datum, and the sill of the doorway to the north of it was 2 ins. lower.

of another finely paved room (14), 17 ft. 4 ins. long by 7 ft. wide, was also polished with much use. It too was drained into Divinity Street. The other paved rooms, whose floors ranged from 0·1 to 0·26 ft. above datum, had no drains, and it is tempting to regard them as the equivalents of the modern refectory and common room. The question, however, as to how these rooms were lighted presents some difficulties, and it is possible that 10, and perhaps 27 and 32, were open courts.

Main Street (*Pls. III, a, c; IV, b, d, f; V, a; VI*).

This very important thoroughfare between Block 1 and the Great Bath building increases in width from 12 ft. 3 ins. at its northern end to 14 ft. 8 ins. at the south (Pl. III, a, c). In the Late II Phase or perhaps even later, the northern end of this street, as is seen in Pl. VI, was entirely closed by a very curious brick construction, 12 ft. 11 ins. N.-S. by 12 ft. E. W. (Pl. IV, d), in which the bricks, 11·75×5·75×3 ins. in size, were laid on their longer edges.[1] In this platform, whose surface shows a great deal of wear, ten shallow pits are arranged in two parallel rows of five, 1 ft. 2·5 ins. apart. The pits are not now all the same size—they range from 8·6×7·25 by 4·6 ins. deep to 9·75 ins. square by 4·6 ins. deep—but originally they may have been so. At the north and south, this platform was edged with bricks standing on their ends with their flats together.

I can suggest no meaning for this construction unless the holes in its floor once held the upright wooden supports of two rails between which all those who entered Main Street had to pass. The marked degree to which the surface of this platform is worn between the two lines of holes as compared with the sides strongly bears out this view. A restriction of this kind on the foot traffic down Main Street is comprehensible in view of the character of the buildings in this street. Some check may have been kept on the numbers of people who entered the Great Bath building. Or it is conceivable that this was an octroi post. It was situated on a direct route to the Columned Hall in the " L " Area, which has features that suggest its being a great market place.[2]

In the Late II Phase, for it rested in part on the stone blocks covering the drain of the Intermediate I and Late III Phases, a long wall was built down the middle of the northern end of Main Street parallel with the walls on either side. At the further end from the square platform described above, this wall turned westward in order to divert the traffic into an alley. The northern portion of Main Street had, in fact, suffered very badly from subsidence on the occasion of the great flood which brought the Late III Phase to an end. In Pl. IV, f, it is seen that not only did the northern end of the great stone-covered drain of Main Street collapse but the large building from which it came collapsed also, a disaster that possibly cost some lives. It is reasonable, then, to suppose that the new wall was built to prevent people from entering this part of the city from the original direction.

[1] Its foundation level was 0·2 ft., and its surface 1·2 ft. above datum.

[2] *Mohenjo-daro and the Indus Civilization*, pp. 160-65. The ground level (−8·5 ft.) of this hall is naturally considerably lower owing to its distance from the Stūpa mound and to its being on the edge of the " L " mound.

The eastern face of this comparatively thin wall was evidently not intended to be seen, and it was, moreover, strengthened with buttresses of somewhat irregular size (Pl. IV, b). It seems possible, indeed, that the space between it and the original wall of Main Street was filled in with rubble to serve as a make-shift protective wall, perhaps in place of a section of the city wall that may have been washed away.

The chief drain of Main Street averages 12·25 ins. wide by 1 ft. 4 ins. deep and slopes to the south with a fall of 3 ft. 6 ins. in a length of approximately 350 ft.[1] Its covering consisted of roughly-hewn stone blocks (Pl. III, a), averaging 1 ft. 6 ins. by 9 ins. by 5 ins. in size, which could not have been far below the surface of the street, for the thicker stones show a certain amount of polish on the upper side. As this channel undoubtedly received drainage from the Great Bath building by several outfalls, it must be dated to the Intermediate I Phase.

A subsidiary drain, which ran along the western side of the street parallel with this main drain for a short distance opposite the lane between the Great Bath building and Block 6, was picked up again further to the south (Pl. III, a, c). This channel has not yet been excavated throughout its entire length. It averages 7·5 ins. wide by 8 ins. deep and, like the main drain with which it seems to have been contemporary, it sloped to the south.

There was a third drain in Main Street, of which very little had survived. It received the drainage of room 56 in the Collegiate Building (Pl. VI) through a chute, 9·6 ins. wide, at an angle of 45°. This chute was subsequently blocked up and another built, some 1 ft. 7 ins. higher up, with a much less pronounced slope. This drain, whose channel was 7·75 ins. wide by 2 ft. deep with its floor 3·9 ft. below datum at the outlet from room 56, ran for a short distance parallel with the main drain.

For a considerable distance from its northern end, the walls on both sides of Main Street are well-preserved. As we approach its southern end, however, its eastern wall (the Collegiate Building) is more and more dilapidated owing to the depredations of brick-robbers. This removal of bricks is perhaps mainly to be attributed to the Buddhist monks, for the plinth of the stūpa and the surrounding monastic buildings were built with bricks that had been taken from the ancient city.

Close to the entrance to the well-room in Block 6, seal 697 in Pl. LXXXII was unearthed in the street at the level +1·2 ft.; and further north at point 2, seal 695 lay at the level +2·1 ft. Seal 696 also came from Main Street at point 1, and from the same level.

Block 2 (*Pls. II, b, d; VI*).

Block 2 (the Stūpa section) has been fully described by Sir John Marshall.[2] It must, however, come into our purview here also, because in the excavation of Divinity Street we were so fortunate as to find a considerable hoard of Kushān coins, which with the vessel that held them are illustrated in Pl. LXXI, 1, 12; some which were cleaned are also seen in Pl. LXXXII, 11–17. These coins numbered 1,078 in all, and despite being in a jar were very badly corroded.

1 Its bed at the southern end of the street is 4·6 ft. below datum.

2 *Mohenjo-Daro and the Indus Civilization*, Chap. IX.

Mr. N. G. Majumdar, who found them, has examined them with great care and reports that they do not differ in legend or type from those already found in the Stūpa section and described by him.[1]

This hoard of coins was found at the level 15·7 ft. above datum beneath the floor of room 1 of the Buddhist monastery (Pl. VI) which partly overlay Divinity Street, that street having long since been filled up with débris and wind-borne dust. The vessel in which the coins were found is described in the chapter on the Pottery, together with some inscribed sherds of Buddhist date (Pl. LXXI, 2, 11, 16–20) found in other parts of the SD Area.

Block 10 (*Pls. II, b; V, a; VI*).

Immediately to the north of Block 1 and that part of the mound covered by the Buddhist stūpa and surrounding monastery, there appears to have been a great open court. Only a small part of this court has been cleared as yet, but its massive southern and western walls were some 6 ft. 9 ins. thick, the southern wall having been traced to where it runs beneath the Stūpa mound.[2] Comparatively little now remains of the western wall, though it may be picked up further to the north whenever the excavation of Mohenjo-daro is resumed. As far as we can tell at present, this enclosure contained no buildings until the re-occupation of the city in the Late II Phase. In this part of the mound, however, a great subsidence had evidently taken place at the time when the northern end of Main Street and perhaps the city wall beyond were undermined and washed away. Evidently disaster overtook this quarter of the city, and it is doubtful whether the northern and eastern walls of the court will ever be traced.

As elsewhere, the first arrivals of the new population took heavy toll of the walls of this enclosure in the search for bricks to build their houses; but two doorways still remain. The one opposite the Stūpa section was only 2 ft. 9 ins. wide and was perhaps reserved for priestly use.[3] The second entrance, which seems to have been considerably wider, opened on to Divinity Street. The eastern jamb of this door is clearly distinguishable, but the exact position of the western jamb is uncertain. This doorway appears to date from the Late III Phase, for the level of its sill is some 1·5 ft. above datum. The great enclosure wall rests on masonry of earlier times and further excavation here is most desirable.

Some very roughly built walls against the inner sides of the great enclosure wall are of uncertain date; they must have been built at the latter end of the Late Period, or perhaps during the Kushān occupation. In the northern wall of the long passage 9 there are three niches, averaging 2 ft. wide by 1 ft. 7 ins. deep, which appear to have been at all events partially roofed over. These niches may have been cooking-places, for in all of them ash and pieces of charcoal were found. A fragment of paving in the S. W. corner of the court (room 5) was 0·8 ft. above datum, *i.e.*, it is probably to be regarded as of Late III date.

[1] *Mohenjo-daro and the Indus Civilization*, pp. 129, 130.

[2] The top of this wall now stands as high as 10·4 ft. above datum at its eastern end. Its western end is 2·6 ft. above datum.

[3] Its sill was 3·9 ft. above datum, to which level it may have been raised in the Late II Phase.

The position of this court in relation to the supposed temple beneath the Buddhist stūpa unavoidably recalls to mind the similar great court at Ur between the quays and the House of Nannar. In that great khan-like court of Ur, it is thought, payments in kind were collected for the temple revenues.[1] The same might well be true of the great enclosure in this part of Mohenjo-daro.

The lane between this court and the Stūpa section was quite narrow, some 3 ft. 7 ins. wide. Its western half only seems to have been in use as a lane in the Late III Phase, for obstructions were met with in clearing its eastern end which appeared to be the tops of walls of Intermediate date; that is, the Great Court was probably directly connected with the temple at that period, which is what one would expect.

In this block (at 7), seal 703 (Pl. LXXXII) was found at the level 1·1 ft. below datum.

Block 6 (*Pls. III, b, d; IV, a, c, e; V, a, c, d; VI; VIII*).

Block 6 (Pl. VI), of which a reconstructed ground-plan on a larger scale is seen in Pl. VIII, was a remarkable building, whose counterpart has not yet been unearthed in any ancient city. Some 185 ft. long by 82 ft. wide, it was surrounded by well-defined lanes with Main Street on its east.

The arrangement of the southern portion of this building is very much obscured by the presence of a large platform of burnt brick that was presumably constructed in the Late II-I Phase, on which to erect a building.[2] This platform still reached the level 3·9 ft. above datum, but it must originally have been considerably higher. It should one day be entirely removed, so as to expose the rooms beneath.

Chambers 9, 14 and 15 (Pl. VIII) appear not to have been filled in at the time this platform was built; in them two staircases were constructed to lead up to the rooms upon the platform. The staircase in room 14 was not bonded with the wall against which it was placed, and it was only 2 ft. wide with treads 9·5 ins. high and 8 ins. broad. Of the four remaining steps, the lowest one was 1·9 ft. below datum. The broader flight of steps in room 9 had treads of the same dimensions and its lowest step was approximately at the same level as in the other staircase.[3] This part of the building was entered in the Late III Phase from the lane that ran E.-W. between it and the Great Bath building, room 15 serving as an entrance hall. This doorway was the usual 3 ft. 4 ins. wide with its sill practically at datum level. In the Intermediate I Phase, the building had clearly been entered by a doorway of the same width into room 14, whose sill was 2·4 ft. below datum; this door was bricked up when the new entrance through room 15 was made.

The very fine well near the south-eastern corner of this building (Pl. V, d) evidently owes its peculiar oval shape to the chamber in which it was sunk. It measures 6 ft. 2 ins. by 4 ft. 3 ins. in diameter and its well preserved coping, 0·9 ft. below datum, was constructed with wedge-shaped bricks, 10·9 ins. long, 5·4 ins.

[1] Woolley, *Antiquaries Journal*, vol. V, No. 4, pp. 364-5.

[2] This dating may have to be amended later.

[3] The sill of the doorway between the two rooms in which these staircases were situated was 1·9 ft. below datum.

wide, and graduating in thickness from 1·75 to 1·85 ins.[1] To prevent the coping from being displaced by the ropes employed in drawing the water, an edging was made around it of bricks set upright on their ends, and these in turn were kept in place by the pavement. The latter was more than usually well laid and shows signs of constant heavy wear. The bricks used were 9·75×5·15×2·25 ins. in size and were laid in mud-mortar on their longer edges. Around it is the usual edging, some 2·75 ins. high, to prevent the percolation of water into the walls, and drainage was by an open channel, which averages 10 ins. wide and 7 ins. deep, through the room to the south. The lowest part of this pavement is 1·2 ft. below datum. The room to the south is paved at a level some 4 ins. lower with bricks of the same size but laid on their flats. The drainage channel which received a tributary from between the two pavements emptied itself into a stone-covered drain which with a graceful curve turned due west along the lane between this building and the Great Bath building (Pl. VI). In this lane the channel of the drain is 10 ins. wide by 1 ft. deep, and west of Block 6 it has entirely disappeared.

That this unusually large well was in public use is evident from the existence of an entrance doorway, no less than 8 ft. 3 ins. wide, from Main Street.[2] This door was partially blocked up at a later date by a thin wall which still stood a few inches high. There was doubtless an inner door on the opposite side of the well-room, but the wall on this side had been removed by brick-robbers, leaving part of the wainscotting of the pavement standing (Pl. V, d, left hand side); there is no doubt that room 17 was a separate chamber.

In the middle portion of the block was a most interesting series of rooms, in two rows of four separated by a narrow passage down whose centre ran a remarkably well-built drain. Though these rooms varied somewhat in size and shape, they all had certain features in common, namely, their small cell-like size, a narrow doorway with immensely thick jambs, a carefully paved floor sloping to the drain that ran out through the door, and a staircase on one side. In photographs b and d in Pl. III, two of these rooms are seen, but in both of them one of the walls had been removed anciently by brick quarriers.[3] The passage (Pl. IV, c) between the two sets of rooms averages 3 ft. 5 ins. wide. The drain is some 9·25 ins. wide by 1 ft. 8 ins. deep, *i.e.*, it is built of eight courses of bricks in alternate headers and stretchers,[4] and it slopes towards the west with a drop of 1 ft. in a length of 68 ft. Before its exit from the building beneath its western wall, this drain describes a double curve to north and west again, beyond which no traces of it could be found. This double curve is seen in Pl. IV, e, and it should be noticed that no specially shaped bricks were employed in its construction; bricks of ordinary size and shape were trimmed to the requisite curve after they were laid. Apparently the drain was never covered, unless with wood which has long since perished; lying open as it now does, it makes it somewhat difficult to walk through the passage. Only at its eastern end are the edges of the drain slightly recessed, so that bricks laid across would have completed the pavement that seems to have been laid at this point for the water-carriers to deposit their

[1] When first uncovered, there were grooves in the coping caused by the ropes used to draw the water up.

[2] Its sill was 0·1 ft. below datum.

[3] In the plan in Pl. VIII, these walls have been restored.

[4] Half-way along, the top of this drain is 2·5 ft. below datum.

jars. These recessed edges are plainly seen in the photograph Pl. IV, c. This main drain received the water from the rooms on either side of the passage by the small drain from each, whose average size is 8 ins. wide by 9·5 ins. deep.

It will suffice to describe only two of these bathrooms in detail, for, as mentioned above, they are all alike in general design.[1] The narrow entrances average only 2 ft. wide, the smallest being 1 ft. 10 ins. wide and the largest 2 ft. 2·5 ins. This narrowness in conjunction with the depth of the door-jambs (some 3 ft. 3 ins.) secured a high degree of privacy for the bathers, for no one in the central passage could see into any of the bathrooms without stepping into their doorways. Even further privacy was afforded by the fact that the doors of the bathrooms on opposite sides of the passage alternate instead of being opposite to one another.

The two best preserved of these bathrooms are Nos. 13 (Pls. III, b; V, c) and 19 (Pl. III, d). The former measures 9 ft. 6 ins. long by 5 ft. 8·5 ins. wide. At its eastern end five treads remain of a stairway, 1 ft. 9·2 ins. wide, each some 8·75 ins. broad and 11 ins. high. A little landing at the foot of the stairway was 8·5 ins. above the pavement, which at this point was 2·6 ft. below datum. The western jamb of the door and the whole of the western wall had been removed, but, curiously enough, no damage had been done either to the pavement or inner side of the drain. The removal of this wall was most fortunate from our point of view, as it enabled us to photograph the room. As will be seen in this photograph, the pavement had been laid with the greatest care; the cut bricks employed measure 10·25×5·25×2 ins. and were laid on their flats. A border of bricks set on edge served to protect the walls from percolation. At the western side of the room a runnel in the floor, 9 ins. wide and deep, carried the water away into the drain in the passage. Owing to the removal of the western wall, we were able to examine the foundations of this runnel. Five courses of brick[2] formed its sides and one course its bed (Pls. III, b; IV, a), beneath which was a layer of gravel, 2·75 ins. thick, which in turn rested on four courses of bricks, mostly arranged as headers. It will be seen that very considerable care was exercised in the construction of these drains, the layer of gravel being more probably intended to level the drain than to prevent dampness by percolation.

No. 19 (Pl. III, d) was 11 ft. long by 5 ft. 6 ins. wide. As in No. 13, one wall had been removed by quarriers with no damage to the interior of the bathroom. The staircase against its eastern wall was 1 ft. 3 ins. wide with treads 7·5 ins. broad by 11 ins. high; and it was not entirely bonded into the wall. The lowest tread is 8 ins. above the floor, whose highest part is 2·5 ft. below datum. A portion of the pavement had subsided owing to the settlement of its foundations. As in all the other bathrooms, it was bordered with bricks set on edge, except alongside the drain whose channel was 8 ins. wide by 11 ins. deep.

Only a small area of the pavement of No. 12 had survived. It had been constructed of two courses of cut brick, 10·12×5·25×2·12 ins. in size, laid on four courses of ordinary bricks, measuring 11·5×5·75×3 ins. The surface of this pavement was polished by wear and in it one or two depressions had been made by the bases of the water-jars. It was possible to restore Nos. 8 and 12 of these bathrooms in the plan from traces of foundations found here and there (Pl. VIII).

[1] The bricks used in their construction average 11×5·5×2·6 ins.

[2] 11×5·5×2·5 ins. in size.

This bathing establishment is one of the most interesting buildings unearthed at Mohenjo-daro and affords much room for speculation. There can be no doubt whatever that in the Late III and II Phases this group of rooms was used for ablutions. The very close proximity of this block to the Great Bath building—which is of Intermediate date—is very significant; indeed, it is possible that the 7 ft. wide passage between them may have been roofed in. Most probably bathing was a religious duty, as with most Indians to-day and I am inclined to regard the bathrooms in Block 6 as provided for the members of some kind of priesthood, whereas the general public performed their ablutions in the Great Bath. This priestly community lived, I imagine, in rooms above the bathrooms, to which they descended at stated hours to perform the prescribed washings. Possibly they were monks or ascetics who occupied this building, and they kept themselves apart from the world; the extreme narrowness of the doorways of the bathrooms ensured the utmost privacy, even if no doors of wood or matting (which would inevitably have disappeared) were provided. The narrow passage between the bathrooms was probably only used by the servants whose duty it was to provide each room with water from the near-by well.

The proximity of these bathing establishments to what we surmise was a temple below the Stūpa buildings supports the suggestion that they were connected in some way with the religious life of the city.

It should be pointed out that the average level of the doors and pavements of this group of bathrooms is considerably higher than the promenade around the Great Bath, there being a difference of a little over 9 ft. between the two. On this account, it seems that the bathrooms in Block 6 should be regarded as of Late III date. In the first book on Mohenjo-daro, the Great Bath building was dated to the Intermediate Period, but whether it should be Intermediate II or I, it is as yet very difficult to say. In such an important structure as this, the usual procedure of raising the floor to comply with a general rise of level would be too costly to be lightly undertaken; it is, therefore, possible that it was in use at the same level throughout its history, although the buildings around it gradually rose to higher levels, even though still connected with it.

There is clear evidence that these bathrooms were re-occupied towards the latter end of the Late Period, for some of the walls show obvious signs of having been roughly raised. This being so, it is somewhat surprising that so little damage was done to the staircases and pavements, but the new occupants probably used only the upper rooms without searching the accumulated débris below for bricks. In a rough niche, 1 ft. 3 ins. wide by 9 ins. high and 1 ft. deep, in the middle of the western wall of room 23, the fine bronze spear-head illustrated in Pl. LXXI, 33, was found—an implement which can hardly be properly associated with a bathroom.[1] Another niche in the western wall of room 26 with its base 3 ft. 3 ins. above the earlier pavement was 11·75 broad by 8·5 ins. high and 6·25 ins. deep. These were the only niches found and are obviously later additions.

The northern portion of this block was very badly damaged both in the Late II and I Phases, and also during the Buddhist occupation. Of the four apparent doorways in its northern wall, three are mere breaks in the wall though they may once have been entrances. Only the third from the east was quite certainly a doorway, though its western jamb was missing. The sill of this door which is 4 ft. wide, is 5·2 ft. above datum and it is, therefore, later in date than the group

[1] This spear-head (SD 3304), no less than 15·3 ins. long, came from 0·1 ft. above datum.

of bathrooms. There was another entrance to this part of the block, 3 ft. 6 ins. wide, from the east through room 34; its sill is 4·3 ft. above datum and is thus post-flood in date. But there seems to have been an earlier doorway here, though we have not yet completed its excavation.

The rooms in this part of the building (Pl. V, a, middle distance) need further clearance before we can safely date them, for they were partially destroyed by brick-robbers and, moreover, had been filled up with burnt bricks and mud-mortar to form a solid platform similar to the one in the south-eastern portion of the block.

Quite a large collection of pottery was unearthed in Block 6, as well as many important antiquities. From room 12 at the level −3·7 ft. came the pottery group CD (Pl. LIII, 44-6). In room 13 were no less than three separate groups of pottery (U, Z, AB) (Pl. LIII, 7-10, 40-1, 42-3), all approximately 1·1 ft. below datum.

Another group (S) (Pl. LIII, 1-2) was found in room 15 at the level −3·5 ft., and from room 19 came group P (Pl. LII, 37-8) at −1·2 ft. In bathroom 23 were four groups (Q, T, V, EF) (Pls. LII, 32-6; LIII, 3-6, 11-28, 47-52) at levels ranging from 2·3 ft. below datum to 0·7 ft. above.

The bathroom 27 contained one group (R) (Pl. LII, 39-42) at the level −2·1 ft., and bathroom 30 four groups (O, X, Y, GH) (Pls. LII, 23-8; LIII, 19-20, 29-39, 53-6) at levels from −2·3 to + 2·4 ft. As some of these vessels lay on the pavements of the rooms and others in the débris above the pavements, they cannot all be regarded as part of the original equipment of the bathrooms. In all probability, most of them dated from later days when these rooms had lost their original function and served as ordinary dwelling-places. The curious mixture of types in these groups of vessels also bears out this supposition, as water-vessels made for use in a series of bathrooms would tend to be all of one pattern.

Of other antiquities, the little shell animal seen in Pl. LXXI, 29, lay 2·4 ft. below datum in room 22. In room 13 were found seal 702 (Pl. LXXXII), and also the curious round bronze tablet with figures in relief on both faces, illustrated in Pl. LXXXII, 6, both at the level −0·8 ft. In room 20 at the level −0·9 ft. was found a broken pottery model of a bull with the body covered with unusual incised markings (Pl. LXXI, 26).

Two objects from room 23 are an exceptionally fine bronze figure of a buffalo from 2·9 ft. below datum (Pl. LXXI, 23) and a sandstone hone (?) (Pl. LXXI, 24) from the level −0·8 ft. In this room also was seal 700 (Pl. LXXXII), at approximately the same level as the hone. Another seal, No. 704, came from room 30, some 0·7 ft. below datum.

In the narrow alley between Blocks 6 and 8 a piece of glazed steatite inlay (Pl. LXXI, 4) was found.

Block 8 (*Pls. V, a; VI*).

Though a part of its southern portion has been excavated down to the Late III level (Pl. V, a), comparatively little work has been done on this block as yet. It was a practically square building with well defined lanes on all four sides, and was much smaller than the other buildings in this quarter of the city. As in the adjacent Block 6, the rooms of Late III date were obscured by fillings of burnt brick; the task of removing this filling was so heavy that a large part of it was left in place, the diggers being transferred to more profitable work. We have ample

evidence, however, that this block was built over in Buddhist times, for traces remain here and there of Buddhist masonry and also numerous potsherds of those days. This is not surprising, in view of the survival of a Buddhist building higher up the mound to the north of this block.

Room 7, some 19·6 ft. long by 9 ft. 10 ins. wide, in the south-eastern corner of the block probably dates from the Late Period of the ancient city, as its walls are in alignment with the rest of the block. But it was very roughly paved with odd fragments of brick laid quite haphazard, and from this, together with the fact that Kushān pottery (Pl. LXXI) lay about on this floor, I am inclined to think that the walls of this chamber were raised and that it was re-used in the Buddhist Period. Its entrance, 2 ft. 10 ins. wide, was from Main Street in early times also, for the foundation level of the door-jambs has not yet been reached. Its present sill resembles the Buddhist flooring of the room and is at the same level, *i.e.*, 3·3 ft. above datum. Later still, this doorway was turned into a niche by an addition on the outside—it will be recalled that this part of Main Street was a street no longer, so that there was no question of encroachment. A second doorway, only 2 ft. 2 ins. wide, in the northern wall of this room led into the little room 8 which may have been a sleeping-place ; and here again we have the two-roomed residence that we are already familiar with in the monastic building round the stūpa.[1] Subsequently this door too was blocked up (Pl. V, a).

The entrance to the main part of the building must have been in its southern wall, presumably into room 1 or still further west. The door into room 1 is estimated to have been some 3 ft. wide, and its sill was 2·4 ft. above datum.

The small room 10 was originally a part of No. 9, but was partitioned off with a communicating doorway, 3 ft. 6 ins. wide, which was eventually bricked up. No flooring remained in either of rooms 9 or 10, but there are signs that the walls of both had been raised by unskilled masons, presumably during the Buddhist occupation.

Five circular constructions, some 11 ft. 3 ins. in diameter, which stand on a roughly paved floor high up on the northern side of the block can only have been Buddhist. They had all been so badly denuded by time and climate that they now stand from 3 ins. only to 3 ft. high, the tallest being the easternmost. The interiors of these circular structures, whose bricks were all laid as stretchers, were filled in with masonry. They appear to be the bases of small stūpas ; and they were carefully examined for relics, but without success. The roughly paved platform upon which they stand was an average level of 6·7 ft. above datum, and it was partially enclosed on the north and completely on the west by walls which in places still stood 7 ft. above the pavement. These walls appeared to be of Kushān date, though built with ancient bricks.[2]

Amongst the objects found in Block 8 were a hollow, pottery figure of a monkey (Pl. LXXI, 27) and an interesting fragment of a black steatite head (Pl. LXXXII, 4). The pottery group W (Pl. LIII, 17, 18) was unearthed in room 5 at the level −1·7 ft., and a ball of variegated coloured stone (Pl. LXXI, 7) came from room 4 at the level +0·9 ft. A pottery model of a dove with outstretched wings (Pl. LXXI, 28) came from the much higher level +4·5 ft.

[1] *Mohenjo-daro and the Indus Civilization*, pl. XVIII.

[2] On the other hand these walls might be of Indus Valley date and re-utilized in Buddhist times.

A yellow limestone gamesman (Pl. LIII, 57) was found in room 9 at the level +3·6 ft., and the extremely interesting pottery prism (Pl. LXXXII, 1, 2) was unearthed in room 10 at 1·9 ft. above datum.

Block 9 (*Pls. V, b; VI*).

Block 9 to the west has also been only partially cleared. Pl. V, b, shows five very curious cells in a row from E. to W. that were constructed by building two long, thick, parallel walls, of which the southern one was 5 ft. wide, and then dividing up the space between by unbonded partition walls. The rooms thus formed were evidently intended all to be the same size, namely, 10 ft. 1 in. wide, N.-S., and an average of 10 ft. 9 ins. long, E.-W. The shortest of them, No. 16, is 10 ft. 1 in. in length and the longest, No. 6, 11 ft. 6 ins. The southern side of Nos. 5 and 6 had been almost entirely removed by brick-robbers, and we cannot say with any certainty that there were no doors to these two apartments on this side. On the northern side of No. 5, however, there is a bricked-up opening, 2 ft. 3 ins. wide, whose sill was 4·1 ft. above datum.

No. 6 may have been entered from the south; here, as in No. 5, the thick southern wall had been razed to below the level of any possible sill. No. 9 seems never to have had a doorway, unless it was high up on the southern side, and Nos. 12 and 16 were certainly doorless. No traces remained of paved floors or even of footings, except on the western side of No. 5, where a footing projects 6·5 ins. at the level 5 ft. above datum. This ledge is clearly seen in the photograph. The masonry of these rooms or cells is of much too high a quality to be of Buddhist date.

On the other side of a long passage (14), 3 ft. 9 ins. wide, along the southern side of this row of cells were the remains of three rooms that had been denuded away with the outer slope of this part of the mound. A bricked-up doorway, whose sill was 2 ft. above datum, gave entrance to room 11, but the narrower opening, only 2 ft. wide, into room 10 beyond seems too small ever to have been a door.

There was once a little group of rooms at the western end of this row. Of these, No. 3 was curiously long and narrow, some 13 ft. 7 ins. long and 3 ft. 3 ins. wide; and in No. 1, a roughly paved brick floor sloped to the S. W. corner. There was a doorway, 4 ft. wide, in the southern wall of this room, with its sill 3·5 ft. above datum. A recess in the eastern wall, lined with bricks and with an empty space in its centre, may have been used as a fireplace, and this was evidently at one time a small dwelling-house. No antiquities of any special interest or importance were found in this block.

The narrow lane between Blocks 8 and 9 was 3 ft. 10 ins. wide, but along its eastern side ran an important drain, 11·5 ins. wide by 1 ft. 4 ins. deep, that was covered with small blocks of limestone (Pl. V, b), 1 ft. 9 ins. long by 11 ins. wide and 5–5·5 ins. thick. We were unable to locate the northern end of this drain, as it disappears beneath some Buddhist buildings. It had a fall of 4·4 ft. in a length of some 80 ft., and the level of its bed at the lower southern end is 5·2 ft. below datum.[1] The masonry and level of this drain together with the

[1] This drain also had sunk badly in places owing to the subsidence that affected so large a part of this quarter of the city.

covering-blocks of stone make it probable that it was of contemporary date with the large drain in Main Street. It appears to have received the drains from the Bath Building (Block 6) and the lane between that and the Great Bath building; and though it is now impossible to trace any actual connection, this complex of drains not improbably emptied itself into the important covered drain from the Great Bath.

CHAPTER III.

STREETS AND LANES OF THE DK AREA (G SECTION).

The plans in Pls. XVI to XX show how carefully the G Section of the DK Area was laid out. First Street which marks the eastern limit of our excavations was, as is seen in Pl. XXIV, a, capable of accommodating a great deal of traffic; and it can be traced as far southwards as the southern limit of the HR Area (Pl. I), thus traversing the city from north to south. Central Street, though narrower (Pls. XIII; XX), was another important thoroughfare, by which the heart of the city could be reached from the western gate which probably gave on to the river where, it seems possible, there were quays. There appears to have been another street parallel to it, also running into First Street, further south where now a deep gully lies between rows of small mounds (Pl. XX). On the eastern side of the portion of First Street excavated, there seems to have been only one street of importance opening into it, opposite Block 6A (Pl. XX). It is somewhat curious that there was no important street from north to south bisecting the southern part of this section as the northern part is bisected by West Street. Some explanation of this is perhaps afforded by the presence of the Palace (Block 1) which seems to have been a very ancient foundation. When first built, it was possibly surrounded by gardens and so isolated; and later, when its importance waned, it may have been considered too costly a business to drive a street through the buildings that had sprung up around it, possibly for the use of various officials.

First Street (*Pls. XIII; XIV; XVI–XX; XXIII, 5, 8; XXIV, a; XXV, a–f; XXIX, a, c, d; XLIV, c; XLV, a; XLVII, a, b; XLIX, a*).

Intermediate III Phase (Pl. XVI). Average level: –20·4 ft.—That portion of First Street which runs alongside Blocks 3, 5 and 6 has been excavated down to the foundation level of the Intermediate III occupation, at which level the width of the street varies from 32 ft. at the southern end to 30 ft. 3 ins. at the north of the section cleared. Only the façades of the houses on the eastern side of the street have been cleared, this being the limit decided upon for our excavations in this direction. Beyond this line, two-thirds of the mound still remains untouched and will undoubtedly provide many buildings of interest for future excavation.

As far as we can tell at present, this street appears to be the second most important thoroughfare of the city; for although it is longer than the street that crosses it at right angles, coming presumably from the east gate of the city, the latter is undoubtedly wider—along it the grass-covered road to the camp now runs between the HR and VS Areas (Pl. I). None the less, First Street was wide enough to take several of the vehicles of those days abreast. The scene in Pl. XXIV, a, was arranged and photographed expressly to demonstrate this fact.

Into the western side of the street two lanes open, of which the one to the south, Crooked Lane, is only 3 ft. 1 in. wide (Pl. XVI), whereas the other, almost half-way along the street and between Blocks 5 and 6, is 4 ft. 3 ins. wide. Between these two lanes, a passage, 3 ft. 10 ins. wide, which gives access from First Street to a room in the southern half of Block 5, may have been a lane in a yet earlier period.

On the eastern side of the street, opposite Block 5, there is an opening, 5 ft. 6 ins. wide, now blocked up with rubble; but this appears to be a doorway, whose sill is 19·8 ft. below datum. Further north and facing the opening between Blocks 3 and 5, a wide lane, 9 ft. across, was open at this period. In the Intermediate II Phase, it was filled up with mud brick and built over, and from then on ceased to be.

Two narrow openings, each 2 ft. 11 ins. wide, to the north of this lane both appear to have been the doorways of houses, unless the northern one was a very narrow alley-way. The sill of the southern opening which was definitely a doorway is 20·9 ft. below datum (Pl. XXIX, a). It was blocked up in the Intermediate I Phase, except for a small drain in the middle, and from then onwards the house was entered from the other side. Near the southern jamb of this door a drainage jar was found intact. The base of the vent beneath which it lay is 19 ft. below datum, and it will be noticed that above the jar a small cesspit, 10·5 ins. square inside, was added to increase its capacity.

A large opening, 8 ft. 6 ins. wide, opposite to Block 6 and at the level 19·1 ft. below datum, is probably that of a fairly wide street. Unfortunately, it is now in a ruinous condition (Pl. XXV, c and e) owing to the collapse of the walls on either side.

The walls of this section of First Street even now stand 18 ft. high in places, and the general impression that they make upon the eye and mind is that the masonry is much better at the lower levels, save where a certain amount of patching was necessitated by floods and the action of salt (Pl. XXV, e and f).

To the visitor, one of the most striking features of this street is the number of drain-holes in the walls at various levels, ranging from small square apertures to a well constructed chute, according to the wealth of the house-owner and the refinement of his domestic offices.

In the Intermediate III Phase, First Street was drained along the western side by a channel which may have been an open one.[1] This drain, which averages 10 ins. wide by 1 ft. 11 ins. deep, though well made was not very well aligned (Pl. XXV, e). It makes a bend where Block 6 encroaches on the street, and near the southern end of the section cleared it crossed the street and proceeded southwards on the opposite side.[2] The direction of flow was to the south at a gradient of about a foot in a distance of 190 ft. At its northern end the floor of this drain is 23 ft. below datum. I cannot imagine that this channel sufficed for so important a highway; there must have been others which may have been dismantled for their bricks when no longer in use. The channel that still remains had itself been partially destroyed—almost completely so at its southern end.

Provision was, however, made for the local drainage of Block 3, for large jars and cesspits of rather small size were used to receive the effluents from the various rooms. Two jars evidently intended for the same purpose were found against the eastern wall of the street opposite the southern portion of Block 5.

Intermediate II Phase (Pl. XVII). Average level: −15·9 ft.—In general, First Street presented very much the same appearance in the Intermediate II Phase as in the previous sub-period, except that for a distance of 124 ft. along

[1] No covering bricks were found along the length exposed.

[2] The walls of this drain were once undoubtedly much higher than they now are, as it was re-used in the Intermediate II and I Phases.

the frontages of Block 5 and a portion of Block 6, platforms were built out into the street an average width of 4 ft. 6 ins. (Pl. XXV, c and d). The outer faces of these structures were only one brick thick, the spaces between them and the houses behind being filled in with débris. There can be no doubt that on these benches the miscellaneous wares of a bazaar were set out for sale. As photographed in Pl. XXV, they appear to be a considerable height, the explanation being that with the rise of the level of the street, the bazaar platforms had also to be raised, while the alignment of the street remained the same well into the Intermediate I Phase. That these platforms were not an attempt to enlarge the houses that they front is proved by the thinness of their walls and by their being filled up with rubble. Such an encroachment on the street must obviously have had the consent of the city authorities, with whom it is quite possible that the owners of Blocks 5 and 6 had some influence. It should be noted, however, that these platforms had no direct connection with the houses behind them which were entered from elsewhere. Though these platforms were built against otherwise blank walls, a fine chute, 2 ft. 7 ins. wide, outside room 12 of House I, Block 5 (Pl. XXIX, d),[1] which seems to be of early Intermediate II date, was an exception. The difficulty was met by extending the chute to cross the platform when the latter was built in front of it. Another smaller chute, 1 ft. 6 ins. wide, sloped at an angle of about 30° across the platform just to the north of the large chute, but curiously enough, no trace of it could be seen in the house wall behind. The base of this chute was 17·3 ft. below datum.

At the southern end of the street the main drain that was used in the previous phase was re-used by the simple expedient of raising its walls, but only as far north as the southern limit of Block 5 where it crossed the street. Indeed, the walls of this drain were raised and repaired at least twice to enable it to be used in the Intermediate II and I Phases as well as in the Intermediate III Phase when it was first constructed. In its last phase this channel, which averaged 16·5 ins. wide, had walls that were nearly 6 ft. 6 ins. high (Pl. XXV, d).

Small tributaries from the unexplored buildings on the eastern side of the street entered this drain at the points marked 18 and 19 at the level −18·9 ft.[2]

The section of the drain which crosses the street opposite Crooked Lane was much dilapidated; in the middle of the street it had even been destroyed down to the Intermediate III level. Fortunately, the eastern and western ends of this section were well enough preserved to show that in the Intermediate II Phase the channel had been at least 2 ft. deep and 11·7 ins. wide, and very carefully constructed; the middle point of its bed was at the estimated level of 18·1 ft. below datum, whereas the earlier channel was considerably lower. A portion of a small but substantially built drain, 8·5 ins. wide by 11·5 ins. deep, with its bed also at the average level of 18·1 ft. below datum entered the main drain from Crooked Lane, which was here only 3 ft. 8 ins. wide, between Blocks 3 and 5 (Pl. XXV, d).[3]

North of the junction of these two drains, the main drain which skirted the walls of Blocks 5 and 6 was no longer used; the drainage was diverted to a new channel outside the platforms described above.

[1] Its base as seen in the photograph is 19·1 ft. below datum.

[2] It is uncertain whether these small drains are of Intermediate III or II date.

[3] The lane was in actual fact wider than at the Intermediate III level owing to the batter of the walls on either side.

The source of this portion of the main drain during this sub-period seems to have been a small channel at right angles to it and at a slightly higher level, which came from a building on the eastern side of the street opposite the middle of Block 6. North of this we could find no successor of the drain of the previous phase; possibly drainage pots were substituted for it.

At the southern end of the excavated portion of First Street, a line of cess-pits drained the western side. Through another cesspit on the eastern side of the street opposite room 42 of Block 3 (20) the main drain passed, though what the relationship between the two may have been, it is hard to see. The paved floor of this pit, 19·1 ft. below datum, was 5 ft. by 4 ft. 4 ins. Its walls, 4 ft. high, were raised to allow of the pit being re-used in the Intermediate I Phase; hence it appears in both plans. Where the drain skirted the western side of the street, a number of large pottery vessels received the drainage of the opposite side. Parts of already broken jars had apparently been swept away by floods and most of the survivors had been smashed by earth pressure.

At the approximate level of 18·8 ft. below datum, we found that First Street had been paved with a conglomerate of broken bricks and potsherds in clay cement. This material made a road metal very suitable for pedestrian and animal traffic, and in the course of time had become so compacted as to present considerable opposition to the picks of the diggers. The fragments of bricks that were used were of a size that would easily pass through a 1·5 in. ring, and the potsherds mixed with them were of smaller size still. This road metal was probably laid down in wet weather to ensure rapid consolidation; there were no indications that it was either stamped in or rolled. Despite the fact that the people of Mohenjo-daro had ample supplies of this suitable material for road-making, so far we have only found this one street metalled.

Intermediate I Phase (*Pl. XVIII*). *Average level: –13 ft.*—No change was made in the alignment of the street in the Intermediate I Phase, but at the northern end it must have looked very different owing to the bazaar benches that were now built along the eastern side. These benches are seen in photographs a and b in Pl. XXV; though excavation had already been carried deeper, they were left standing on earthen supports until it became necessary to remove them.

These platforms are of little interest in themselves, being mostly thin walls, from half a brick to a brick and a half in thickness, filled in with rubble and sometimes paved on the top. In photograph a in Pl. XXV, it should be noted the Late III additions and drains above some of these benches had not yet been removed.

A drain-hole in the wall at the eastern side of the street opposite the middle of Block 6 communicated with a channel, 6·5 ins. wide, that ran for a short distance (17·5 ft.) southwards along the foot of the wall to enter a cesspit (12) (Pls. XXV, a; XLV, a). The masonry of this drain which had been partially destroyed was remarkably good; as is seen in Pls. XXIX, c; XLV, a, the sides of the channel had been carefully rubbed down and were very smooth. The joints are wonderfully close and it is impossible to insert the thinnest knife between the bricks. The aperture in the wall is 7·1 ins. high by 4·3 ins. wide, and the channel of the drain was 14·2 ft. below datum at its northern end. The bricks used in its construction were of two sizes, namely, 10·2 × 4·9 × 2·2 ins. and 10·5 × 5·2 × 2·2 ins.[1]

[1] The mortar used was of lime and clay, of which the analysis by Khan Bahadur Muh. Sana Ullah will be found in Chapter XVI.

Just south of No. 12 was a large cesspit, 5 ft. 11 ins. long by 3 ft. 5 ins. wide by 4 ft. 2 ins. deep, which is fully described in the next section (Late III Phase); its walls were then raised 2 ft. 4 ins. or more to bring it into use again.

It will be noticed that the long benches outside Block 5 and a part of Block 6, which were constructed in the preceding phase, had been heightened and were still in use.

The main drain towards the south, which we have already seen was constructed in the Intermediate III Phase and re-used throughout a good part of its length during the next occupation, was raised once more to serve the Intermediate I Phase. The walls of this old drain were in consequence a very considerable height—over 6 ft. in places—and it became necessary to raise its floor also by partially filling it in with broken brick, and even, here and there, with bricks placed on edge. Otherwise it would have been exceedingly difficult, in fact, almost impossible, for the city scavengers to clear out the narrow channel.

On the opposite side of the street from the brick benches described above, where there was no main drain in the Intermediate II Phase, photograph a in Pl. XXV shows that in this occupation a new drain was laid immediately above the old main drain of the Intermediate III Phase, whose channel had been filled in with bricks.

That the drains of Mohenjo-daro were cleared out periodically is attested by the little heaps of greenish-grey sand that we frequently found alongside them. The more finely levigated clays would be readily carried off by the rush of water whereas the heavier particles of sand were deposited.

By this time, it should be noted, First Street was slightly wider than in earlier days owing to the batter of the walls on either side. The northern end of the street, for instance, was 30 ft. 8 ins. wide against 30 ft. 3 ins. in the Intermediate III Phase.

Late III Phase (Pl. XIX). Average level: −9·9 ft.—At the Late III level a rather longer section of First Street was cleared, the additional length beside Block 6A averaging 31 ft. wide. A large opening, 12 ft. 6 ins. wide, on the eastern side of the street opposite to Block 6A can only be that of a side street, which is, of course, entirely filled up with rubble. One would have expected this street to be opposite to and a continuation of Central Street, but the town-planning regulations of Mohenjo-daro were evidently stretched upon this occasion.

Immediately outside 42 of Block 6A there is a sediment pit, 3 ft. 3 ins. by 3 ft. in size, whose sides are half a brick thick and now stand only three courses high. The paved floor of this pit is 11·5 ft. below datum, and a drain, 9 ins. wide, passed through it a little above the level of the floor, so that any solid matter in the drainage would have been deposited.

A second pit outside 41 is 3 ft. square, and its sides, now 3 ft. 6 ins. high and well preserved, were probably once rather higher. This pit, whose floor is a foot lower than that of its neighbour, received the drainage from a chute in the wall above it. Situated in an enclosure, 21 ft. long by 7 ft. 8 ins. wide, whose longest wall was only one brick thick, the whole arrangement throws an interesting light on the life of the city. The large enclosure could have had nothing to do with the drainage of Block 6A, and it was probably filled up with débris and used as a bazaar bench on which merchandize was exposed for sale. Its situation immediately over a cesspit may seem rather remarkable to the western mind, but in parts of Sukkur and other towns of India exactly the same arrangement is seen

to-day; nor does the uneducated Indian see anything incongruous in it. On the south side of the cesspit outside 42, there are the remains of a very similar bench.

In front of Block 6, a moderately well preserved drain (13) ran southwards outside rooms 17-19 with a drop of 4 ins. in 20 ft. The bed of its channel, which was 9 ins. wide by 12 ins. deep and covered in with bricks of various sizes laid flatwise, was at its northern end 11·7 ft. below datum; the southern end had disappeared.

The top of a badly damaged pit, 3 ft. square, outside room 11 of House II, Block 6, was 10·7 ft. below datum, and its brick floor 10 ins. lower. The overflow from this cesspit entered a well-made drain running southwards, of whose channel, 7 ins. wide by 8 ins. deep and a little below the level of the top of the pit, unfortunately but little remains until some distance further south where we picked it up again. Here the drain was better preserved and the covering bricks were still in position (Pl. XLVII, d), and we were able to ascertain that in a length of nearly 47 ft. there was a drop of 8 ins. I have no doubt that this channel once ran to the southern end of the street; probably the badly damaged section of drain outside Block 5 is a part of it. In the short lane between Blocks 5 and 6 a tributary drain was unearthed at the level of 12·3 ft. below datum.

Outside room 16 of Block 5, the top of a small soak-pit, with its unpaved floor 1 ft. 6 ins. square, was laid bare at the level 11·6 ft. below datum. Of three pits opposite room 15 of Block 5, the largest, which had a paved floor but was very dilapidated when found, appears to have been 2 ft. 5 ins. square and 1 ft. 5 ins. deep. The overflow from it was carried southwards by a very roughly built channel, some 7 ins. wide by 12 ins. deep. After a short gap another section of drain was found, obviously a continuation of the channel further north, but this petered out opposite Crooked Lane (Pls. XLVII, b and c; LI, d).

Opposite room 47 in Block 3 there were three badly dilapidated pits, of which two are seen in Pl. XLVII, b. There were also at this period three other drainage pits opposite the southern portion of Block 3, of which No. 2, the largest. was 3 ft. 10 ins. square. From two of them the surplus water was carried off by drains running southwards, of which little remained.

On the opposite side of this part of First Street very little was left of the drainage system of the Late III Phase; in fact, both the street and the houses of Blocks 3 and 5 had suffered badly from time and weather.

Returning to the northern end of this section of First Street, we find a cesspit opposite Block 6A, but no trace remained of the drains connected with it. Its well-paved floor was 12·9 ft. below datum, and in its eastern wall there was a chute, 6 ins. wide, with its base 3 ft. 4 ins. above the pavement of the pit.

Opposite the northern end of Block 6 were the foundations of a market-bench (15), immediately south of which lay a small cesspit, 2 ft. 10 ins. by 2 ft. 4 ins. by 1 ft. 8 ins. deep, of which a plan and section appear in Pl. XXIII, 8. This pit was somewhat roughly constructed, but as it was underground and well packed on all four sides this was probably thought not to matter. Neither inflow nor outlet could be found, and it was evident that the top of the pit had been destroyed.

The little bazaar bench 12 overlay another badly dilapidated pit, 5 ft. 1 in. long by 3 ft. 5 ins. wide, whose paved floor remained, but the upper parts of whose walls had mostly disappeared, so that no trace was left of the drains that emptied into it.

The drain of Intermediate I date (Pl. XVIII) which ran into the cesspit (12) had apparently been heightened with masonry of very inferior quality. Though very little of this remained, a part of two courses is seen in Pl. XXIX, c; and the walls of the cesspit of the Intermediate I Phase (Pl. XVIII) had been raised 2 ft. 4 ins., so that they were now 6 ft. 6 ins. high. In the south-western corner of this pit, as the plan and section in Pl. XXIII, 5, show, a flight of steps was roughly built in the Late III Phase to allow of easy descent to clean the pit out—an arrangement which was quite frequent in the Late III Phase when earlier structures were re-utilized as far as possible.[1] In both phases the drainage seems to have entered the pit from the north and escaped southwards. The masonry of this sub-period is very coarse in comparison with the exceedingly well laid, specially cut bricks of the Intermediate I Phase.

Further south along this side of First Street still other remains were found of cesspits, drains and benches, presenting much the same features as those already described. And it is clear that this formerly purely residential section of First Street was already becoming less exclusive in character; in modern terms, it was definitely going down.

Late II and I (b and a) Phases. (Pls. XIII; XX). Average levels: −3·2 ft. to −0·8 ft.—At the Late II level, the section of First Street cleared extended considerably towards the north to the point where the mound begins to descend gradually to plain-level. How far the street actually ran in this direction we do not know; but probably for some considerable distance, for on either side beyond the point to which we cleared are mounds of varying heights at lower levels, covering the remains of buildings which must have suffered badly owing to their proximity to the outer limit of the city on this side. To the west of the line of road beyond what may possibly be the site of a gateway, the ground is strewn with the blackish nodular débris of a brickfield; to the right and further out lies a great heap of town refuse, in which we have cut trenches described elsewhere (Pl. VIII, H, 4). The width of the street at the furthest point to which we cleared it is 26 ft. 3 ins.; opposite the northern limit of Block 6 at the same level it was 32 ft. wide, and 33 ft. at its southern end.

In the Late II Phase, the drainage of Block 6A was completely altered. A new drain, of which only a short section remained, curved southwards from room 41 to pass down the western side of the street. The channel of this drain which was irregular in width, varying from 6 ins. wide at the north to 10 ins. wide at its southern end, was covered with bricks laid on their longer edges. Its depth was uniformly 1 ft. 1 in. and the level of its floor averaged −8·1 ft. It is possible that this drain was still in use in the Late Ib Phase, and that it received the drainage of a second but very much smaller channel from the near-by room 43 by means of a vertical fall, now missing.

The paved floor of a sediment-pit, nearly 4 ft. square, outside room 29 of Block 6 also lay 8·1 ft. below datum, but was probably constructed in the Late Ib Phase; its walls stood only some 8 ins. high.

Just in front of the gap between rooms 11 of House II and 17 of House III, Block 6, there was another pit, 2 ft. 6 ins. square, in which stood a large pottery jar. In this case, the floor was 10·9 ft. below datum, so that the pit must date from the Late II Phase; its walls stood some 1 ft. 6 ins. high. It is difficult to

[1] *Cf.* the stairs to the well-room (42) of Block 8A; also into the well-room of House I, Block 15 in the northern portion of this section (Pls. XII, e; XLIII, c).

understand the purpose of the thin wall that ran diagonally towards the centre of the street immediately north of this pit at the level −10·1 ft. It may be one of the walls of a drain; but if so, it is difficult to account for the total disappearance of the brick floor and other wall of the channel.

Indeed, practically nothing remained of the drainage system of First Street during the Late II and I Phases. Before excavation, it was just a gully between lines of low mounds, and water pouring down it during the winter and summer rains had swept away all the ancient brickwork, leaving only the lower parts of one or two cesspits which were at a slightly lower level than the drains that once ran into them. These lay on the western side of the street, where Blocks 3, 5 and 6 are stepped and they were thus protected from the force of the water which ran down from north to south. The southern end of the eastern side was very bare, probably owing to the straightness of alignment offering no obstruction to flood-water, so that only fragments of benches and cesspits were left in its course.

To the north of Central Street (Pl. XIII, C) quite a number of lanes opened from the eastern side of First Street. Their widths preclude these still blocked-up openings being the doorways of houses; moreover, as is mentioned elsewhere, it was not the usual custom for houses to be entered direct from a main street.

In this section of First Street, the best preserved length of drain lies close to House II, Block 26. The bed of its channel which is 10 ins. wide by 8 ins. deep is 10·7 ft. below datum, and it should perhaps be dated to the Late III rather than the Late II Phase. It is possible that some thin walling (31) that partially masks the entrance to a lane may be the remains of another drain.

Further north, a short length of drain hugs the eastern wall of the street opposite Block 28. Its channel, which is 6 ins. wide and deep and is covered with bricks laid flat, slopes to the north. Since at a point half way along it the level of its bed is 8·2 ft. below datum, this drain is to be regarded as of Late II date.

The bench (33, 34) against the eastern wall of the street opposite Block 27 occupied an excellent position between what were probably important side lanes. As its thin walls only stand about a foot high with their tops averaging 6·7 ft. below datum, it may be inferred that it was built in the Late Ib Phase. It appears that beneath its southern portion there was a drain which was possibly the inflow or outflow from a cesspit, a point to be settled by further excavation.

Central Street (*Pls. X, b–d; XIII; XXII, 5*).

This very important street between the Northern and Southern Portions of our excavations in the DK Area seems to have been the chief entrance into the city through a north-west gate from the river and the quays that may have existed along its bank, a question which is discussed elsewhere.

From its junction with First Street as far as the western limit of Block 8A, Central Street is a little over 15 ft. wide. It then gradually widens as it proceeds westwards and at the same time loses its proper alignment on its Southern side until West Street is reached, where its width is about 21 ft. From this point, Central Street diverges to west-north-west, the reason for which is suggested further on, and is directly aligned to the point at which we have found some evidence of a gateway in what appears to be a portion of the city-wall. Thus Central Street provided direct communication between the river and First Street, one of the main arteries of the city, at right angles to it. There is no evidence in the Late II and I Phases, however, that it crossed First Street and proceeded further east.

Judging from the thickness of their walls, most of the buildings on either side were of very considerable importance. As would be expected in the street which led from the outside to the heart of the city, there is some evidence that these buildings were khans and storehouses for the accommodation of man and beast, and the storage of merchandise. Those on the southern side have been excavated down to pavement level and in some cases as far as the foundations of the Late III Phase; but those on the northern side of the street had only been cleared to Late II level when the financial troubles of India unfortunately precluded any further examination. Thus we do not know this street at the zenith of its prosperity, and even the buildings on its southern side only from the time when their decline had already set in.

In the Late Ib and Ia Phases, Central Street presented very much the same appearance as in the Late II Phase (Pl. XIII). The main street drains of the eastern end of the street in the Late I occupations seem to have been entirely removed by brick-robbers, if they ever existed, and so were those of the Late II Phase with a few exceptions. I cannot but think that there must have been a system of drainage eastwards into First Street, but not a vestige of such a system has been found; though a small section outside House II, Block 26 (Pl. XIII), which appears from its level to date from the Late II Phase, indicates a main drain in First Street at that time. In the search for bricks during the period of decadence of the city, drains that were probably no longer in use and yet were not far beneath the surface of the streets would have been early destroyed.

The drain that in the Late Ib Phase came from House XII above the earlier stairway between Blocks 8A and 9 was of quite small capacity as it served only that house and its neighbour (Pls. X, c; XIII, C). After quite a short distance this drain emptied itself with a perpendicular fall of about 12 ins. into a westward-running street drain of Late II date which had already received a tributary from Block 18 on the other side of the street. Where this tributary crossed the street there had been a soak-pit earlier in the same phase, whose broken walls now stand only a few inches high; the new drain from Block 18 was built right across the pit.

After receiving further tributaries from a little shop and from House XI, the street drain also received the drainage of West Street and the overflow from a cesspit outside a well-room, also of the Late II Period, at the corner of that street. Eventually it emptied itself into a drain at right angles to it coming from the lane between Blocks 9 and 9A, which turns westward to disappear at the edge of the mound.

The well-preserved soak-pit (Pls. X, b; XXII, 5) outside Block 8A is described with that building. Suffice it to say here that this pit was constructed in the Late II Phase and that its walls were raised in the Late Ib occupation, when it was also used by the owner of Block 21 on the north side of the street, the cesspit which formerly served the latter building being dispensed with. The walls of this unused pit, which is described with Block 21, still stand 3 ft. high in places.

The circular wall in the middle of the street near its eastern end (Pl. X, d) was once, I think, a pottery kiln. Very similar structures, and less dilapidated, were found in Blocks 2 and 9 (Pl. XX). This kiln, if so it be, is of very late date and can safely be ascribed to the Late Ia Phase, and possibly even later. The presence of a kiln in the middle of a once important street is a measure of the final downfall of the city.

The two photographs of Central Street (Pl. X, c and d) show well the character of the walls on either side. On the right of Pl. X, d, there is a wall[1] that was reconstructed in the Late Ib Phase, whose builder either did not take the trouble to preserve a proper alignment with the wall below or, which is more probable, successfully annexed a 6·5 ins. strip of ground from the street, a proceeding which would certainly not have been allowed by the civic authorities of earlier times.

West Street (*Pls. XI, a–d; XIII; XIV*).

This name has been given to an important thoroughfare in the northern portion of the DK Area that separates the very large building (Bls. 18 and 19), to be described later, from a row of somewhat poorly built houses and a guard-house (Bls. 15 and 17) to the west. The difference in the quality of the masonry of the two sides of this street is remarkable; in fact, it appears that the general level of the large public building on the eastern side is rather higher than the level of corresponding date in the houses,[2] so that masonry of the Late III Phase is seen *vis-a-vis* with that of Late II days, and the evidence thus provided of the decadence that was already creeping upon the city in the latter period is illuminating. In conformity with the already mentioned change in direction of Central Street from the point where West Street enters it, 64 ft. of the frontage of the later built houses at the southern end of West Street make a slight angle with the rest of the western side of the thoroughfare. The width of the southern end of the street is, in consequence, 15 ft. 9 ins. as against 9 ft. 10 ins. at its northern end. The façades of the houses of Block 15 as far north as room 15 of House IV, a distance of 95 ft., it might here be noted, are seen to rest on a foundation of rubble, which necessitated repairs in them at frequent intervals owing to subsidence.

In the Late III Phase, it seems, the street drain that had served the eastern side of West Street during the preceding Intermediate I Phase was re-used by the simple expedient of raising its sides, so that the 6 ins. wide channel became no less than 3 ft. deep—a fact that strongly suggests that there was a continuity between the Intermediate I and Late III occupations that contrasts sharply with the complete break and abandonment of the city between the Late III and Late II Phases.[3] This deep drain (Pl. XIII, B) extends the whole length of the street; its southern end is seen on the right in Pl. XI, b, and its damaged northern portion can just be discerned on the left of the Late II drain in Pl. XI, d. The slope was to the south with a gradient of 13 ins. in 73 ft., and at the middle of its course the bed of its channel was 12·8 ft. below datum.[4]

At the re-occupation of the city at the beginning of the Late II Phase, this drain was probably entirely filled up and hidden by accumulated rubbish, and in any case with such a depth it would have been very difficult to keep clear. In this period, then, two drains were built to serve the street, one running to the north along the eastern side of the street, the other to the south along the western side. The former (Pl. XIII, B) evidently served the large building (Bls. 18 and 19) seen in Pls. XI, d; XIII. Its channel averages 8·5 ins. wide by 10 ins. deep, and its bed is 9·2 ft. below datum at the middle of its course. The second drain of this

[1] The southern wall of House I, Block 25, had been raised from the level 6·4 ft. below datum.

[2] This is probably due to this building, owing to its importance, being erected on a mud-brick platform.

[3] The re-use of a street drain of the Intermediate I Phase in the Late III Phase is also seen in Main Street in the SD Area.

[4] This drain is, of course, not shown in the Late II plan.

phase, of which a somewhat shorter length remains, emptied, as already mentioned, into a drain in Central Street (Pl. XIII, C). Its channel was slightly narrower, but of much the same depth and approximately the same level as the drain to the north. It is also seen on the left in Pl. XI, b.

In the Late Ib Phase, the whole drainage of the street was received in a median channel (Pl. XIII, C), 10 ins. wide and deep, with its bed at the average level −7·1 ft. This channel which was covered with bricks laid on edge received branch drains from the buildings on either side. With a very definite slope to the south, this drain finally emptied itself into the drain of that period in Central Street.

Of the Late Ia drainage system no trace remains, save a small channel coming from the narrow alley between Blocks 15 and 17 (Pl. XIII, A). The street drain or cesspit into which this emptied has entirely disappeared either through denudation or brick-robbing by neighbouring villages, though the latter seems hardly probable in view of the position of West Street in the site.

Lanes *(Pls. XV, a, b; XVI–XX; XXX, c, d; XXXI, c, d, e; XXXII, c, d; XXXIII, c, d; XXXIV, a, b, c, d; XXXVIII, c, d; XXXIX, f; XL, a, b; XLI, a; XLII, a, c).*

With the exception of First Street, the most impressive thoroughfare in the DK Area, Southern Portion, is unquestionably *Low Lane* which runs practically parallel with it. This is chiefly because the depth to which it has been excavated and its narrow width increase the apparent height of the houses on either side. But the street has preserved its character and identity from the Intermediate III (Pl. XVI) onwards to the Late I Phase (Pl. XX). The façades of most of the houses as far as the northern limit of Block 6 are some 15 ft. high. In the photograph (Pl. XXX, d) of the northern end of Low Lane, the slope or batter of the outer faces of the walls will be noticed; and on a closer examination it will be seen where these walls were raised from time to time. Pl. XLIV, d, shows the appearance of the northern end of the street where the excavation has not been carried so deep, with a drain of Late III date receiving tributaries from Block 6. In Pl. XLIII, a, two cesspits of Late II date outside Block 8A are seen.

Crooked Lane is the southernmost of three more or less parallel thoroughfares that run westwards from Low Lane. In the middle of its course it skirts the southern wing of the Palace (Block 1). It is not so well preserved as the other lanes to be described, for the reason that it lies along the southern border of the mound and the buildings on that side of it have suffered badly from erosion by wind and rain. Nowhere along its whole length are the walls on either side particularly high, and it presented its most imposing aspect when excavated to the base of the Intermediate II stratum (Pl. XVII).

Along most of the southern side of Crooked Lane the walls of that phase rest on rubble, and it appears not to be so ancient a thoroughfare as the other streets and lanes; indeed, it is permissible to suppose that the Palace when first built was not so closely surrounded by houses as with the growth of the population it came to be later. The irregularity and varying widths of both Crooked Lane and Fore Lane to the north of it strongly suggest that they were made after the Palace which lies between them. Crooked Lane, indeed, varies in width from 3 ft. 1 in. wide at its First Street end (Intermediate III level), where its walls stand some 10 ft. high (Pl. XXX, c), to 6 ft. 6 ins. in width between House III, Block 2, and the southern wing of the Palace (Pl. XVII). where the walls average 14 ft. high.

Here the lane turns at right angles to the south and disappears. I have no doubt, however, that deeper excavation at this point will show that eventually Crooked Lane debouched into a street running E.-W. that from surface indications seems to have bounded G Section on this side.

Another thoroughfare of importance is *Fore Lane* which runs due west from Low Lane along the northern façade of the Palace (Blocks 1 and 4), making a slight deviation round the projecting northern wing of the Palace. This stretch of Fore Lane was in use until the Late III Phase (Pl. XIX). Then—most unaccountably—a wall was built across it opposite the middle of the Palace; though on either side of this wall the lane apparently still remained in use as such until the evacuation of the city owing to the flood at the end of that sub-period. On the re-occupation of the city in the Late II Phase, there seems to have been no civic authority for some time. The first-comers of the new, or returned population, in consequence, took possession of and built over the western end of Fore Lane (Pl. XX).

Photographs a and b in Pl. XV show the remains of Fore Lane in the Early Period at about half way along its length; Pl. XXXIII, c, shows its western end, and Pl. XXXVIII, c, its eastern end at the Intermediate III level.

Long Lane also runs westwards from Low Lane between Blocks 7, 10 and 10A on the south and Blocks 8, 9, 12 and 11 on the north. This street also was in use until the Late II Phase, when sections of it were annexed and built upon, as was Fore Lane to the south of it. Pl. XXXIX, f, shows Long Lane between Blocks 7 and 9 (House III), as excavated to the base of the Intermediate II stratum. In Pl. XXXI, c, the E.-W. portion of the lane between Blocks 9 and 10 (House II) is seen; and the photographs, Pls. XL, a (left hand side); XXIV, b (a basket-boy is standing in the lane), show the present appearance of Long Lane further west. The badly wrecked northern side of this part of the lane is well illustrated in Pl. XL, b, where also an Indian is seen standing in it.

After a short turn to the north beyond this point, Long Lane continues westwards along the southern side of the Khan (Block 11). Pl. XXXII, c and d, are views of this section of the lane as excavated to the base of the Intermediate III stratum; and it will be seen that the middle portion of the southern side of the lane had disappeared, though substantial foundations remained.

Short Lane, between the eastern end of the Khan and Block 12, has been cleared to the same level and is most impressive with lofty walls on either side still standing some 18 ft. high in places (Pl. XXXIV, a). The average width of this street at the level of the drain of Intermediate III date is 4 ft. 4 ins.

Pl. XXXIV, c and d, show the appearance of a section of *Loop Lane* between the walls of Blocks 11 and 12A, cleared down past the Intermediate II level, save where the drain of Intermediate II date was left. This part of the lane narrows considerably towards the north but averages 5 ft. 3 ins. wide, and the walls on either side still stand some 12 ft. high. The Khan wall on its western side has a very pronounced batter, whereas the wall of the unimportant house on the east had practically no batter at all and had been much repaired in the Intermediate II Phase. The parts of this wall that had suffered from the salt that seems to have been prevalent even in those days had been removed and fresh bricks inserted; and the base of some considerable length of the wall had been underpinned with bricks laid on edge (Pl. XXXIV, c)

The southern portion of Loop Lane between Blocks 12 and 12A had an average width of 6 ft. At its eastern end is a little tower-like building in the N. E. corner of Block 12 (Pl. XLI, a).

Owing to the large number of the objects found in the streets and lanes of the DK Area, they are incorporated in a list at the end of this chapter instead of being mentioned in the text.[1]

First Street.—The various parts of this street are numbered to indicate whereabouts in the street each object was found.

Object.	Plate and No.	Locus.	Level. (Ft.)
Pottery Group (G)	(Pl. LXIV, 20, 21, 27, 28).	(18)	– 23·6
Holed Brick	(Pl. CVIII, 24)	(5)	– 23·5
Female Figurine	(Pl. LXXV, 9)	(1)	– 23·5
Pottery Hook	(Pl. CIX, 11)	(5)	– 23·4
Pottery Group (F)	(Pl. LXIV, 19, 24–26)	(5)	– 23·4
Copper Dagger	(Pl. CXXXIII, 34)	(22)	– 23·2
Copper Dagger	(Pl. CXXIX, 1)	(22)	– 23·2
Pottery Animal	(Pl. LXXX, 9)	(1)	– 23·0
Pottery Groups (I.L.)	(Pl. LXIV)	(1)	– 22 to – 23·3
Pottery Whorl	(Pl. CIX, 59)	(1)	– 22·9
Pottery Figurine	(Pl. LXXV, 3)	(7)	– 22·7
Pottery Figurine	(Pl. LXXV, 4)	(5)	– 22·2
Animal Figure	(Pl. LXXIX, 10)	(1)	– 22·0
Pottery Figurine	(Pl. LXXVI, 24)	(5)	– 21·7
Pottery Strigil	(Pl. CVIII, 3)	(1)	– 21·7
Faience Monkey Figure	(Pl. LXXX, 1)	(5)	– 21·5
Bone Rod	(Pl. CX, 51)	(22)	– 21·4
Seal	(Pl. XCIX, 661)	(22)	– 21·2
Jar-stopper	(Pl. LXXXI, 11)	(6)	– 21·2
Carved Brick	(Pl. CVIII, 15)	(1)	– 21·0
Pottery Group (S)	(Pl. LXV, 9, 16, 17, 28).	(6)	– 21·0
Pottery Dog Figure	(Pl. LXXIX, 4)	(9)	– 20·8
Pottery Bull Figure	(Pl. LXXIX, 29)	(6)	– 20·5
Pottery Cone	(Pl. CVIII, 12)	(6)	– 20·5
Copper Awl	(Pl. CXXX, 17)	(21)	– 20·3
Brick Door-socket	(Pl. CVIII, 25)	(18)	– 20·2
Copper Knife	(Pl. CXXX, 22)	(5)	– 20·1
Copper Knife	(Pl. CXXXI, 17)	(5)	– 20·1
Pottery Figure (Antelope)	(Pl. LXXX, 4)	(11)	– 20·0
Pottery Amulet	(Pl. CII, 15)	(11)	– 19·9
Seal	(Pl. XCVIII, 636)	(21)	– 19·9
Copper Arrow-head	(Pl. CXXXII, 30)	(21)	– 19·3
Ivory Baton	(Pl. CX, 12)	(5)	– 18·9
Pottery Figure of Dove	(Pl. LXXX, 23)	(22)	– 18·4
Head of Pottery Bull	(Pl. LXXIX, 22)	(18)	– 18·4
Pottery Group (N)	(Pl. LXIV, 58, 59, 63–65).	(22)	– 17·5
Female Figurine	(Pl. LXXVI, 21)	(3)	– 17·0
Pottery Bull Figure	(Pl. LXXIX, 31)	(12)	– 17·0
Pottery Groups (A, B, T)	(Pls. LXIV; LXV)	(21)	– 14·9 to – 16·9
Pottery Tube	(Pl. CIX, 47)	(21)	– 16·9
Pottery Handle	(Pl. CXI, 82)	(21)	– 16·9

1 Unimportant objects have been omitted.

Object.	Plate and No.	Locus.	Level. (Ft.)
Copper Razor	(Pl. CXXVIII, 12)	(22)	−16·8
Ivory Fish Figure	(Pl. CXLIII, 28)	(12)	−16·7
Ivory Roundel	(Pl. CIX, 14)	(22)	−16·0
Copper Razor	(Pl. CXXVIII, 14)	(4)	−14·3
Vitreous Paste Button	(Pl. C, 14)	(9)	−12·7
Bronze Antelope Figure	(Pl. LXXVII, 1)	(10)	−10·0
Stone Barrel-weight	(Pl. CVI, 47)	(34)	− 9·9
Pottery Whorl	(Pl. CV, 47)	(7)	− 9·8
Limestone Cone	(Pl. CIV, 29)	(7)	− 9·8
Seal	(Pl. LXXXVIII, 283)	(29)	− 9·7
Pottery Figurine of Deity	(Pl. LXXIV, 25, 26)	(28)	− 9·7
Pottery Figurine	(Pl. LXXIII, 7)	(10)	− 9·5
Frag. Shell Bracelet	(Pl. CXL, 56)	(24)	− 9·4
Copper Chisel	(Pl. CXXI, 21)	(7)	− 9·3
Shell Disc	(Pl. CXL, 41)	(24)	− 9·0
Pottery Figurine	(Pl. LXXVIII, 3)	(27)	− 8·2
Stone Jar-stand	(Pl. CIV, 21)	(24)	− 8·0
Pottery Figurine	(Pl. LXXIII, 6)	(4)	− 5·2
Bronze Finger-ring	(Pl. CXXXVI, 88)	(30)	− 4·5
Stone Palette	(Pl. CIV, 8)	(24)	− 4·3
	Central Street.		
Shell Dish	(Pl. CVI, 44)	Bet. Bls. 8A and 21	−13·5
Pottery Mask	(Pl. LXXIV, 21)	South of Rm. 3, Bl. 15	− 9·8
Hone	(Pl. CVI, 20)	Bet. Bls. 6A and 25	− 9·7
Pottery dog	(Pl. LXXVII, 17)	Bet. Bls. 9 (90) and 18	− 8·2
Shell Cone	(Pl. CV, 15)	Bet. Bls. 8A and 21	− 8·1
Hollow Alabaster Cylinder.	(Pl. CVI, 17)	Bet. Bls. 8A (33) and 18	− 5·5
Stone Cone	(Pl. CVI, 50)	Bet. Bls. 8A and 21	− 5·4
Plough-share (?)	(Pl. CVI, 56)	Bet. Bls. 8A and 21	− 3·7
	West Street.		
Seal	(Pl. LXXXVIII, 332)	Bet. Bls. 15 (I) and 18	−10·7
Shell Ladle	(Pl. CVI, 33)	Bet. Bls. 15 and 18	− 8·0
Shell Lamp (?)	(Pl. CVI, 36)	Bet. Bls. 15 (III) and 18	− 7·8
Pottery Chariot	(Pl. CVI, 37)	Bet. Bls. 15 (III) and 18	− 7·6
Seal	(Pl. LXXXV, 122)	Bet. Bls. 15 (IV) and 18	− 6·6
Copper or Bronze Knife	(Pl. CXXII, 11)	Bet. Bls. 15 (II) and 18	− 3·1
Frags. Faience Box	(Pl. CVI, 25, 28)	Bet. Bls. 15 (V) and 18	− 3·0
Hair-pin Head	(Pl CXXXVI, 53)	Bet. Bls. 15 (VI) and 19	− 2·9
Shell Amulet	(Pl CXXXVI, 92)	Bet. Bls. 15 (V) and 18	− 2·6
Pottery Object	(Pl. CVI, 40)	Bet. Bls. 17 and 19	− 0·7
Seal	(Pl. LXXXIII, 1)	Bet. Bls. 15 (III) and 18	− 0·2
	Low Lane.		
Bone Awl	(Pl. CIX, 8)	Bet. Bls. 4 and 5	−19·8
Pottery Head of Bull	(Pl. LXXIX, 33)	Bet. Bls. 6 and 7	−19·2
Alabaster Jar	(Pl. CXLII, 41)	Bet. Bls. 6 and 7	−15·5
Figure of Hare (?)	(Pl. LXXIX, 9)	Bet. Bls. 6 and 7	−15·5
Spindle-whorl	(Pl. CV, 32)	Bet. Bls. 6 and 7	−11·6
Jar in vitreous paste	(Pl. CXLI, 5)	Bet. Bls. 6 and 7	− 9·1
Pottery Group (D)	(Pl. LIX, 7–11)	Bet. Bls. 6 and 8	− 9·1

Object.	Plate and No.	Locus.	Level. (Ft.)
	Crooked Lane.		
Spindle-whorl	(Pl. CX, 41)	East of Palace	−20·0
Pottery Figure	(Pl. LXXXI, 10)	Bet. Bls. 1 (I) and 2	−18·6
Alabaster Jar	(Pl. CXLII, 52)	Bet. Bls. 1 (court III) and 2	−17·5
Pottery Hook	(Pl. CIX, 13)	Bet. Bls. 3 and 5	−15·1
Female Figurine	(Pl. LXXV, 21–23)	Bet. Bls. 3 and 5	−13·2
Stone Weight	(Pl. CXI, 56)	Bet. Bls. 1 (III) and 3	−12·4
Seal	(Pl. LXXXVIII, 330)	Bet. Bls. 1 (I) and 2	−10·8
Figure of Ram	(Pl. LXXVII, 13)	Bet. Bls. 3 and 4	− 9·6
Pottery Fowl	(Pl. LXXVII, 4)	Bet. Bls. 3 and 4	− 9·4
	Fore Lane.		
Pottery Figure	(Pl. LXXXI, 2, 2*a*)	Bet. Bls. 1 and 10 (I)	−31·7
Stone Rubber	(Pl. CIX, 45)	South of Bl. 10 (I)	−31·0
Pottery Bulla	(Pl. CXLII, 4)	Bet. Bls. 1 and 10 (I)	−28·8
Pottery Animal	(Pl. LXXX, 19)	Bet. Bls. 1 and 10 (I)	−28·5
Shell Wavy-ring	(Pl. CIX, 40)	Bet. Bls. 1 and 10 (I)	−28·3
Pottery Figurine	(Pl. LXXVI, 14)	Bet. Bls. 1 and 10 (I)	−28·4
Female Figurine	(Pl. LXXVI, 19)	Bet. Bls. 1 and 10 (I)	−27·6
Pottery Gamesman	(Pl. LXXXI, 15)	Bet. Bls. 1 and 10 (I)	−27·0
Pottery Goat	(Pl. LXXX, 11)	Bet. Bls. 1 and 10 (I)	−25·6
Pottery Boar	(Pl. LXXIX, 1)	Bet. Bls. 1 and 10 (I)	−25·3
Pottery Rolling-pin	(Pl. CVIII, 22)	Bet. Bls. 1 and 10 (I)	−23·7
Pottery Mask	(Pl. LXXVI, 4)	Bet. Bls. 1 (III) and 7	−22·3
Male Figurine	(Pl. LXXVI, 18)	Bet. Bls. 1 (III) and 7	−19·7
Copper Bangles	(Pl. CXXXIX, 26)	Bet. Bls. 1 and 10 (I)	−19·0
Pottery Bangle	(Pl. CXLII, 8)	Bet. Bls. 1 and 10 (I)	−18·9
Portion of Cover (?)	(Pl. CIX, 34)	Bet. Bls. 1 (III) and 7	−16·3
Female Figurine	(Pl. LXXV, 6)	Bet. Bls. 1 and 7	−15·9
Pottery Dove	(Pl. LXXX, 15)	Bet. Bls. 1 (IV) and 10	−15·9
Seal	(Pl. XCVI, 521)	Bet. Bls. 1 (V) and 10	−15·5
Seal	(Pl. XCIV, 430)	Bet. Bls. 1 (IV) and 10	−14·9
Seal	(Pl. XCVI, 500)	Bet. Bls. 1 and 7	−14·8
Bronze Bull	(Pl. LXXIX, 18)	Outside Bl 10 (III)	−14·8
Bronze Antelope	(Pl. LXXX, 5)	Bet. Bls. 1 (III) and 7	−14·3
Copper Knife	(Pl. CXXXIII, 17)	Bet. Bls. 1 (III) and 7	−13·9
Copper Razor	(Pl. CXXVIII, 9)	Bet Bls. 1 and 7	−13·9
Brick Runnel	(Pl. CIV, 18)	Bet Bl. 7 (VII) and Palace	−11·7
Steatite Button	(Pl. CXL, 32)	Bet. Bls. 1 (IV) and 10	−11·4
Animal Figure	(Pl. LXXVII, 22)	Lane south of Bl. 10 (IV)	−11·3
Bone Implement	(Pl. CV, 55)	Bet. Bls. 4 and 7	−11·0
Pottery Object	(Pl. CV, 7)	Bet. Bls. 1 (III) and 7	− 9·9
Paste Vase	(Pl. CVII, 3)	Western end of Fore Lane (60).	− 8·1
Pottery Group (F)	(Pl. LIX)	Bet. Bls. 1 (III) and 7	− 7·1
Frag. of Bangle	(Pl. CXL. 58)	Bet. Bls. 1 (III) and 7	− 6·0
Copper Arrow-head	(Pl. CXXI, 2)	Bet. Bls. 4 and 7	− 5·6
	Long Lane.		
Brick Door-socket	(Pl. CVIII. 7)	Bet. Bls. 10 and 12	−23·4
Seal	(Pl. XCIX, 673)	Bet. Bls. 10A and 11	−22·6
Ivory Comb	(Pl. C, 15)	Bet. Bls. 10A and 11	−21·3
Copper Arrow-head	(Pl. CXXVII, 11)	Bet. Bls. 10 and 12	−22·1
Bronze Bangle	(Pl. CXXXIX, 25)	Bet. Bls. 10A and 11	−21·1

Object.	Plate and No.	Locus.	Level. (Ft.)
Alabaster Pedestal	(Pl. CX, 43)	Bet. Bls. 10A and 11	−19·7
Copper Knife	(Pl. CXXXI, 9)	Bet. Bls. 10 (IV) and 12	−19·7
Faience Bangle	(Pl. CXLII, 9)	Bet. Bls. 10A and 11	−19·4
Shell Bangle	(Pl. CXLII, 15)	Bet. Bls. 10A and 11	−19·4
Pottery Handle	(Pl. CVIII, 13)	Bet. Bls. 7 and 9	−18·3
Pottery Figurine	(Pl. LXXV, 13)	Bet. Bls. 7 and 9 (VIII)	−18·2
Copper Bangle	(Pl. CXXXIX, 27, 28)	Bet. Bls. 10A and 11	−18·2
Pottery Figurine	(Pl. LXXV, 18)	Bet. Bls. 10 and 12	−17·7
Pottery Monkey	(Pl. LXXX, 2)	Bet. Bls. 10 (III) and 12	−17·4
Nose or Ear Stud	(Pl. C, 12)	Bet. Bls. 10 and 12	−16·9
Copper Pan	(Pl. CXXXII, 27)	Bet. Bls. 9 and 10 (III)	−16·0
Seal	(Pl. XCVI, 494)	Bet. Bls. 10 and 12	−14·8
Limestone Pedestal	(Pl. CVIII, 36)	Bet. Bls. 10A and 11	−13·8
Bone Tube	(Pl. CIX, 31)	Bet. Bls. 7 and 8	−13·7
Horned Deity	(Pl. LXXII, 7)	Bet. Bls. 10 and 12	−11·2
Pottery Tablet	(Pl. CV, 38)	Bet. Bls. 10 and 12	−10·0
Copper Finger-ring	(Pl. CXL, 48)	Bet. Bls. 7 (IV) and 8	− 8·7
Copper Arrow-head	(Pl. CXXV, 44)	Bet. Bls. 7 and 8	− 8·5
Copper Arrow-head	(Pl. CXXI, 5)	Bet. Bls. 7 and 8	− 8·5
Pottery Group (B)	(Pl. LIX, 1–3)	Bet. Bls. 7 and 8	− 6·6

Loop Lane.

Stone Toilet Stand	(Pl. CVIII, 28)	Bet. Bls. 11 and 12	−22·8
Copper Chisel	(Pl. CXXXIII, 10)	Bet. Bls. 12 and 12A	−18·5
Copper Hair-pin	(Pl. C, 4)	Bet. Bls. 11 and 12A	−18·4
Steatite Button	(Pl. CXLII, 6)	Bet. Bls. 12 and 12A	−17·5
Copper Chisel	(Pl. CXXXIII, 8)	Bet. Bls. 12 and 12A	−17·5
Ivory Hook	(Pl. CVIII, 8)	Bet. Bls. 12 and 12A	−16·3
Bronze Bull	(Pl. LXXIX, 21)	Bet. Bls. 9A and 12A	−16·0
Bronze Bull	(Pl. LXXIX, 19)	Bet. Bls. 12 and 12A	−13·8
Female Figurine	(Pl. LXXII, 5 and 6)	Bet. Bls. 12 and 12A	−11·3
Shell Cone	(Pl. CV, 14)	Bet. Bls. 12 and 12A	−10·4
Quern	(Pl. CIV, 14)	Bet. Bls. 12 and 12A	− 8·4

Smaller Lanes and Alleys.

Bronze Drill (?)	(Pl. CXXXII, 10)	Bet. Bls. 5 and 6	−21·1
Steatite Whorl	(Pl. CIX, 46)	Bet. Bls. 9 (VI) and 12	−20·4
Copper Scale-pans	(Pl. CXXXII, 9)	Bet. Bls. 9 (VI) and 12	−20·4
Copper Scale-beam	(Pl. CXXXII, 7)	Bet. Bls. 9 (VI) and 12	−20·4
Pebble Weights	(Pl. CXI, 57–62)	Bet. Bls. 9 (VI) and 12	−20·4
Toilet Stand	(Pl. CIX, 23)	Bet. Bls. 2 and 3	−18·5
Pottery Runnel	(Pl. CVIII, 26)	Bet. Bls. 2 and 3	−18·1
Pottery Turtle	(Pl. LXXX, 6)	West of Bl. 1	−16·8
Copper Spatula	(Pl. CXXXIII, 18)	Bet. Bls. 9 (VI) and 12	−16·3
Bronze Finger-ring	(Pl. CXXI, 35)	Bet. Bls. 2 and 3	−15·6
Pottery Buffalo	(Pl. LXXX, 7)	Bet. Bls. 2 and 3	−15·2
Copper Knife	(Pl. CXXVII, 4)	Bet. Bls. 7 (I) and 10	−15·0
Shell Ornament	(Pl. CV, 42)	Bet. Bls. 9 (IX) and 9A	−11·0
Part of Toy Figure	(Pl. LXXIV, 7)	Bet. Bls. 14 (30) and 15	− 6·9
Bronze Adze-axe	(Pl. CXX, 27)	Bet. Bls. 7 (I) and 10	− 6·0
Copper Ring	(Pl. CXXI, 35)	Bet. Bls. 2 and 3	− 5·6
Bronze Ornament	(Pl. CXXI, 29)	Bet. Bls. 2 and 3	− 4·7

Chapter IV.

DK AREA, G SECTION, SOUTHERN PORTION, BLOCKS 1 TO 8.

In order to simplify the descriptions of the houses and buildings of the DK Area, G Section, in this and the following two chapters, the various antiquities found in them are tabulated at the ends of Chapters V and VI. In these lists, only pieces of pottery and seals of unusual interest are included, and the beads have been omitted entirely; the complete lists of these objects are given at the ends of the respective chapters devoted to them, and the reader will easily find the whereabouts of these objects for himself.

It will be seen from a study of these tables that it is well-nigh impossible to determine the use of a building with any certainty from the antiquities found in it. The very interesting, but only partially preserved Block 1A with its two very fine stairways, one of which is double, is a case in point. The small amount of copper and bronze unearthed in this block lay well to the west of the main building, and provides no indication as to the use of what must have been an almost palatial structure. The number of copper melts (Pl. CXXXII, 37-39) in House IV of Block 2 perhaps indicates that a part at least of this building was devoted to metallurgical work, perhaps in connection with the large building to the north and west of it which appears to have been a palace (Block 1); but no kilns of contemporary date were found in the close vicinity of these melts, though there were two in room 33 of the S.-W. wing of the Palace (Pl. XVII). It is, however, very doubtful whether these two kilns were used for smelting metal; it is more likely that they were employed for other purposes. That metal was sometimes smelted at Mohenjo-daro seems, however, to be proved by the find of copper ore together with a small piece of lead in a brick-lined pit in the middle of room 51 of House VI, adjacent to the Palace (p. 54). The presence of the lead is particularly interesting as it may have been used to assist in smelting the ore.

The saddle-querns (Pl. CVIII, 31, 34) in the western court of the Palace are finds that would be expected in a palace where bread was probably prepared and baked. In any large household of the East to-day, it is customary for the servants to congregate and do most of the work of the day in just such a court-yard. There, too, they pass their leisure hours, and the partially preserved gaming-board (Pl. CXLII, 82) which from its rough appearance was obviously cut or rather scratched upon the brick paving of the court was also to be expected.

The steatite pectoral (Pl. CXL, 59) from room 21 of House VII, Bl. 9 (Pl. XX), seems by its size and weight to have been an ornament associated with some kind of ritual. The well-built building in which it was found may, therefore, have had some religious use, a supposition which is supported by the exceptionally well-made stone pedestal (Pl. CIV, 26) found in the same building not far from the pectoral. The trefoil decoration of this pedestal indicates, a point discussed in Chap. XII, that it was the support of some sacred object.

Wherever possible, however, suggestions as to the purposes of the buildings have been made, according to the evidence available, whether it be architectural evidence or the objects found in the buildings.

In describing the southern part of the DK Area, G Section, where excavation has been carried down to the water-level of the driest season of the year, it seems the logical course to begin from the lowest levels and to work upwards so that the reader may be able to follow in the plans the growth of, and the many changes that took place in, that part of the city. That is to say, the chronological and historical order of the levels is followed rather than the adventitious order of digging.

In the limited space of this book it would be neither possible nor desirable to describe the plan of each stratum in detail; that would involve immersing the reader in a mass of minutiae which would only obscure the salient facts and the human interest of the site.

It will be noticed in the plans (Pls. XVI-XX) that some of the house numbers and all those of the various blocks and rooms were carried down from stratum to stratum in the course of excavation, as stated in the Introduction. This will facilitate description and aid the reader to trace the history of particular buildings. The apparent excess of room numbers in the plans of the lower levels is explained by the fact that in the course of time and with the growth of population, originally large rooms were subdivided. Even now, it is customary in the East for sons to bring their wives home to live under the parental roof and the necessity for the subdivision of rooms is obvious. This excess of numbers need not be found confusing; it is, in fact, helpful in describing where in a large room in a lower level any particular object was found.

The buildings of the lowest levels are not nearly so well preserved as those higher up, though the quality of the masonry was excellent. This is chiefly due to the fact that the people of the later occupations systematically re-used as much material from the strata below for building their own houses as they could conveniently dig out. A great many walls, however, can be traced from the lowest levels right up to what was the surface of the mound, and it is to these walls that we shall mainly refer in the following pages.

I do not claim infallibility in my interpretation of the levels of the successive occupations. There was undoubtedly a certain amount of overlapping, as, for instance, when mud-brick platforms were made on which to raise buildings above the risk of being flooded. In the main, however, the levels given for the various occupations can be regarded as correct; as they were worked out step by step they were rigorously checked by close examination of the masonry.

Early Period.—Unfortunately, partly for lack of time, it has not been possible to examine as large an area of the Early levels as we should have liked to do. One is naturally reluctant to remove such very fine masonry as that of the Intermediate Period in order to examine what lies beneath, and in consequence we selected a portion of the area which was unencumbered by buildings except of later date. But though a public building bordered one side of it and houses surrounded it elsewhere, the selected area (Bl. 7, ho. 1) (Pl. XVI) proved to be covered by a very thick mud-brick platform which, of course, proved sterile from the point of view of finding objects in it.[1] From below this consolidated

[1] This platform had been added to in more than one phase, but it was impossible to detect where one layer began and the other ended.

mass of mud-brick, however, there came a large number of children's toys and one other object (Pl. CXLII, 45) which is of especial interest in that it gives us yet another link with Susa at a very early date.[1]

The mud-brick platform, through which it was somewhat difficult to cut, was made of sun-dried bricks of various sizes, one of which measured 11·9×5·8×5 ins.[2] The base of this mud-brick platform was 28 ft. below datum. Below it, a layer of rubble consisting of broken bricks, potsherds and rubbish extended down to 35 ft. below datum; and it was in this layer that most of the finds were made, for the most part broken pottery models of animals. On March 7th, 1931, the sub-soil water which rises and falls with the Indus was reached at a depth of 38·5 ft. below datum. On our return in October of the same year for the new season's work, we found that our wide pit was filled with water up to the level −31·9 ft.; and by the end of January, 1932, the water had not yet sunk to the level at which we had first reached it.

Photograph d in Pl. XV shows the remains of a small two-roomed building that was also found, complete on every side but the west, where other rooms may have been destroyed. The best preserved portion of this building is a small room, 5 ft. 4 ins., N.-S., by 3 ft. 5 ins., E.-W., with a roughly bricked-up doorway, 1 ft. 5 ins. wide, in the southern wall. The second room, that to the east, is the same length but only 2 ft. 8 ins. wide; and its walls which are 2 ft. thick now stand only some 10 ins. above the pavement. Close to and just outside the western jamb of its 2 ft. 4 ins. wide doorway, a door-socket made of a slightly hollowed brick was found. The door-sill and pavement of this little room are 35 ft. below datum; and as will be seen in the photograph the pavement is only two bricks thick. Nothing was found in either of the rooms, both of which show signs of subsidence. Bricks of various sizes (9·2×4·6×2·2 ins.; 9·3×4·6×2·3 ins.; 9·1×4·4×2·2 ins.; and 9·45×4·65×2·3 ins.) were used in this building despite its very early level, which suggests that even then bricks had been borrowed from still earlier strata that now lie below the lowest seepage-level of the Indus.

Four roughly parallel walls to the south of this little building are difficult to understand (Pl. XV, c). They average 7 ft. 2 ins. long by 4 ft. high and 13 ins. wide, and are very badly built of broken as well as perfect bricks on a foundation of rubble at a depth of 31 ft. below datum. From the fact that broken material enters into their construction they were evidently not merely material piled up ready for removal elsewhere, and it seems likely that they were rough shelters thrown up for men who were employed to remove the bricks of earlier buildings.

The top of the large building immediately to the west (Pl. XV, a, b and c) first appeared during the excavation of the Intermediate levels. Its eastern end had been badly mutilated in the search for bricks, and there is no doubt that at one time it was very much larger than now. Its solid foundations which reach the great depth of 32·2 ft. below datum now measure 16 ft. 7 ins. E.-W., by 14 ft. 2 ins., N.-S. Between this building and the great wall to the south of it there ran the very dilapidated drain seen in Pl. XV, b. The bricks of this drain measure 11·9×5·8×2·9 ins. and, as far as can be estimated, its channel was

[1] See Chap. X.

[2] It was extremely difficult to extract a whole brick for measurement and there is some degree of uncertainty even about this size. Though burnt bricks have been found of the same length and breadth, the unburnt ones are thicker—doubtless to permit of their transportation without breaking.

12·25 ins. deep and 15·5 ins. wide. Midway along it, the floor of the channel is 30 ft. below datum and the slope was to the east. At this level the lane along which this drain runs is 4 ft. 5 ins. wide.

Above this drain another was found (Pl. XV, a). This too was very roughly built though this appearance may perhaps be due to subsidence. Its channel, which averages 5·75 ins. wide and 1·1 ins. deep, also slopes to the east with its floor, half way along, at the level −27·1 ft. Bricks of two sizes were used in its construction, 11·75×5·7×3 ins. and 12·2×5·9×2·6 ins., either or both of which may have been taken from deeper levels, though bricks of these sizes are also found in later strata.

I have already stated that water level was reached at 38·5 ft. below datum, but from 35 ft. downwards a layer of stiff clay with occasional pockets of grey sand is clear evidence of the occurrence of a flood. It is, however, impossible to estimate the depth of the deposit left by this inundation, for it certainly extends well below the lowest water-level of the present day. The subsidence of the little building described above is in itself proof of the occurrence of a flood of contemporary date, which clearly was the reason for the construction of the over-lying platform of sun-dried bricks before further building in this quarter was attempted. That the walls of the great building to the south of this platform are also no longer perpendicular is seen in three of the photographs in Pl. XV.

At the end of April, 1932, when the sub-soil water was at its lowest, I asked Mr. Puri, the Custodian at Mohenjo-daro, to dig a trial trench to the lowest level that was possible at the point 3 in Block 7 of the DK Area. The new pit measured nearly 18 ft. by 14 ft. in area and was carried down a further 10·3 ft. from the level −35 ft. Three courses of sun-dried bricks were unearthed at one side of this pit at the level −37·4 ft., but owing to the dampness of the soil it was impossible to separate any out for examination and measurement. At a depth of 6 ft. a layer of potsherds was found, most of them nondescript in character; but some of the most interesting or complete specimens are illustrated in Pl. CXII. In the layer immediately above water-level there were found traces of charcoal and ashes. The level of the seepage-water recorded on the morning of May 10th, after it had been allowed to accumulate during the night, was 42 ft. below datum.

In general, nothing found in these excavations in the Early strata suggests any break in cultural continuity between the Early and the Intermediate Periods, though the results of digging on a more extensive scale might conceivably do so. It is, at all events, certain that the buildings of this site extend as far down as 42 ft. below our datum level. Moreover, those objects that have been found at these very low levels do not differ materially in character from those found in the strata above them.

Especially noticeable is the number of small pottery cones that were found. There were 35 in all, most of them coated with a chocolate-coloured paint[1] and of the types illustrated in Pl. CXXXIV, figs. 13-16, of the first book on Mohenjo-daro. These cones were found associated with a number of pottery balls of small but varying sizes and a large pottery rattle (Pl. CXII, 3); they may, therefore, have been toys or used in a game.

[1] This pigment doubtless contains manganese.

Of ten pottery figures, six were bulls (Pl. CXII, 10, 11), one a buffalo, and another the head of a ram made to be attached to a separate body.[1] The other two were headless bodies and cannot be identified. Three of the pottery wheels used on model carts were found, all of unusually large size (Pl. CXII, 5); and the many broken frames of these model carts were exactly like those from the upper strata (Pl. CXLII, 83).

Six of the potsherds were deeply fluted (Pl. CXII, 9) and seem to have belonged to jars of a type that is very rarely found at Mohenjo-daro and that had not hitherto been known in the G Section.[2] On quite a number of pieces of pottery which had been coated with a thick cream slip (*e.g.*, Pl. LXVII, 3, 4), broad zig-zag lines had been scratched before baking with a comb-like instrument. This " reserved slip pottery ", which is only known in the deeper levels of this site, resembles in technique certain early pottery from Kish and Ur. The contrast in colour between the cream slip and the fabric of the sherds is now slight, owing to the surface of the latter having lost the original light red colour through age-long immersion in water.[3] Two pieces of grey ware appear to be fragments of offering-tables, and other pieces of the ordinary light red ware seem to belong to stands of the Types 11, 14, 17 and 18 in Pl. LXXIX of the first book on Mohenjo-daro.

The almost complete vases illustrated in Pl. CXII, 6, 8, also came from this pit. The painted sherds were few and uninteresting in character; the most complex in design is illustrated in Pl. CXII, 7.

One of the most interesting objects of all those found in this little excavation was a pottery model of a socketed axe (Pl. CXII, 1), which is described in Chapter XIII.

Block 1 (*Pls. XV, a–c; XVI–XXI; XXII, 4; XXVIII, a, b; XXXV, a–g; XXXVI, a, b, d; XLII, a; XLIX, e*).

The southern portion of the DK Area, G Section, is divided into two portions by a remarkably massive wall which forms the northern limit of Block 1. This wall is in places as much as 7 ft. thick and apparently nowhere less than 3 ft. 6 ins. At the lowest level to which we excavated (Pl. XV, a–c), its foundations had not yet been revealed. Along the whole of its length, it stands well up into the Late Ib stratum and its highest part is only 5·4 ft. below datum though, of course, it was raised repeatedly with the rise in level of the mound. Curiously enough, it is actually more spectacular and impressive a mass of masonry in the days of its ruin than it can ever have been at any of the several periods throughout which it flourished.

The alignment of the wall and the batter of its northern face were rigorously maintained throughout, with the exception of one change; half way down its northern face a ledge is seen (Pl. XV, a and b), which at its widest part projects 2 ft. 2 ins. beyond the wall above it and gradually narrows towards east and west. This ledge is an average of 19 ft. 3 ins. below datum and marks the level from which the wall was reconstructed during the Intermediate II Phase

[1] A similar toy is illustrated in *Mohenjo-daro and the Indus Civilization*, pl. CLIII, 39.

[2] *Ibid*, pl. LXXXIII, 1, 2.

[3] This seems to be due to a deposit of lime.

(Pl. XLII, a).[1] The presence of a doorway, 4 ft. 9 ins. wide, with its sill 17·2 ft. below datum (Pl. XVII), makes it certain that this ledge marks a rebuilding of the wall (Pl. XV, a–c).

The whole length of the northern face of the wall has been cleared down to the bottom of the Intermediate III stratum, and in its middle region it has been cleared lower still. The southern face was exposed only as far as the base of the Intermediate II occupation, as until the deeper digging to the north could be finished and filled in again, it would have been unsafe for the labourers to clear both sides of such a lofty wall. But partition walls of Intermediate III date which run southwards from the great wall are included in Pl. XVI.

This wall must clearly have been a part of some public building, which on the evidence available was almost certainly a palace, not necessarily that of a monarch, but perhaps of a ruler of a province, of which Mohenjo-daro may have been the capital. Unfortunately, the depredations of brick-robbers have left but little of this very large building, or complex of buildings, intact. And its arrangement is perhaps most easily comprehended by reference to Pl. XVII which gives some idea of its appearance in the Intermediate II Phase.

Intermediate III Phase (*Pl. XVI*). *Average level: –20·4 ft.*—Pl. XVI is the plan of this building during the Intermediate III Phase, so far as it can be determined, but the absence of doorways makes it difficult to understand the uses of the various rooms and the great open courts.

At this period, room 25 on the northern side of the smaller court—a quite small room with an exceptionally well laid floor[2]—evidently served as a vestibule or guard-room at the only apparent entrance, a doorway 3 ft. 4 ins. wide, in the massive northern façade of the building.

In the angle of the lane immediately outside and to the west of this guard-room, there still remains a very large and remarkably well built cesspit,[3] whose inside measurements are 5 ft. 3 ins. by 2 ft. 6 ins. The sides of this pit were raised and it was re-used in the Intermediate II Phase. Its walls even now stand 6 ft. 4 ins. above a brick floor 22·5 ft. below datum. In its northern wall are two small rectangular apertures, one above the other, about 5·25 ins. high by 8·25 ins. wide. The base of the upper one is 19·4 ft. and that of the lower one 21·3 ft. below datum. There is no doubt they once communicated with street drains of which no traces whatever remained, and it is clear that the lane must have been adequately drained in the Intermediate III Phase, though the demand for bricks was such that the drains were removed when owing to the rise in levels they could no longer be used.

A curious feature of this great building is the long, thick-walled passage, 5 ft. wide, with a double turn and no doorway to either right or left, which separated the two great courts and, indeed, extended right across the whole of the block from north to south. Its walls still stand a considerable height as a result of being raised in the succeeding occupations. This passage probably led to a doorway in the southern façade of the building; a reference to Pl. XVII shows that there was a doorway in this position in the Intermediate II Phase.

[1] The bricks used in the construction of the wall whose top forms this ledge measure 11·75 × 5·85 × 2·5 ins., whereas those used immediately above the ledge are 10·85 × 5·85 × 2·75 ins. in size.

[2] Level: –19·7 ft.

[3] The bricks of the interior were, in fact, very carefully rubbed down.

Only the foundations remain of the walls of the western and southern wings of this phase, and it is impossible to be certain of the arrangement and uses of the rooms.

The floor of the well-room 19 in the S. W. corner of the larger court was roughly paved at the level 19·6 ft. below datum, but only one small part of this pavement now remains on the eastern side of the room.

The only structure that has survived in the courts of the Palace is a small brick lined pit, 2 ft. 11 ins. by 2 ft. 7 ins. in size by 2 ft. 8 ins. deep. Its floor was roughly paved and it may have been a cesspit ; but the finding of somewhat similar pits at higher levels in the same court suggests that, like them, this pit was possibly a grain-bin.

The eastern wing (III) was at this time entered from the south by a doorway, 4 ft. 7 ins. wide, in Crooked Lane.[1] The arrangement of the interior of this wing had been very much obscured by systematic brick-robbing, as elsewhere in the Palace, and there was a more or less open space here until Late Ib times. The dating of the objects found in this desolated area is in consequence very uncertain, for it is quite within the bounds of possibility that the quarriers, who presumably were the occupants of the near-by houses of the upper levels, left quite a number of objects behind them in their search for bricks.

From the slight remnants of partition walls that have survived, it is possible to reconstruct the southern portion of this wing. Its arrangement, though uncertain, suggests stalls for animals; and there is no other place in the vicinity of the Palace for the pack animals, and perhaps cattle, which probably existed in connection with it.

At this period, buildings V and VI of those that later adjoined the Palace on the west were evidently in existence, for parts of two outer walls still survive. But the rest of these buildings and the whole of VII, if it existed, were totally dismantled before the structures of the Intermediate II Phase were erected.

Intermediate II Phase (*Pl. XVII*). *Average level : – 15·8 ft.*—In the following phase of its occupation, the Palace seems to have reached the zenith of its importance. At this time Block 4 appears to have been definitely incorporated with it, for there were two distinct doorways in the thick wall between the two blocks, whereas it is doubtful whether there was any direct connection between them in the earlier days. The discontinuity of the masonry of their northern walls, a little east of the point where the wall bends southwards for a short distance, certainly suggests that Block 4 was a later addition to the Palace, or else an entirely different structure. But the settlement of this point must wait upon the excavation of both buildings to their foundations in the Intermediate III Phase.

At this period (Intermediate II) the Palace was entered by two doorways at the north and two at the south; just possibly there was also a narrow doorway into the well-room (19) on the eastern side of the southern wing, but more probably this was merely an outlet for drainage from the well-room into the cesspit outside. The principal entrance was, no doubt, the great doorway, 8 ft. wide, at the southern end of the still-used passage, with the same double turn at right angles, of the preceding occupation, which led to the two open courts (20 and 23). The sill of this doorway was now 15·9 ft. below datum and the

[1] Level of door-sill, –20·5 ft.

floor of the entrance corridor which was paved in places had been correspondingly raised.

From this passage which in the previous phase had no doors, there was now direct access to the self-contained four-roomed S. W. wing, and, at the bend, to the western courtyard and also to the S. W. corner of the eastern court. The drain, 7 ins. wide by 8 ins. deep, that ran southwards along the eastern wall of the corridor emptied into a drain in Crooked Lane.

The somewhat narrower, but none the less important doorway into the vestibule (74) to the north of the eastern court (Pl. XV, c) appears to have given access to what was probably a series of guard-rooms in the projecting north wing of the Palace (Pl. XXXVI, d). Several of these rooms had niches in their walls in which the occupants could store their belongings. Moreover, in the corner of room 80 was a large pottery bowl, whose rim was at floor-level, surrounded by brickwork. This jar had a hole in the bottom which communicated through a vent in the wall with the lane outside, and we must assume from the careful way in which it was shut off that this apartment was a privy (Pl. XXXV, c). In room 72 of this wing, there were four treads left of a flight of steps, 3 ft. 3 ins. wide, which had an estimated rise of 13 ft. This stairway probably led to an upper storey or to a roof.

The previously existing doorway into the vestibule or guard-room 25 was at this period no longer used and was securely bricked up. The newly made doorway in the angle to the west of the projecting northern wing was perhaps more easily protected by the possibility of enfilading raiders attacking at the point.[1] In the narrow vestibule between this entrance and the western court, a stairway led up, it seems, to an upper floor or the roof of the western wing. Here, too, a section remained of a well-made drain of sawn bricks with a channel, 6·25 ins. wide and 9·75 ins. deep, which was presumably connected with the cesspit in the lane outside. The sides of this pit were raised at this period with masonry inferior in quality to that below, leaving a slight footing along its northern wall at the level 17·1 ft. below datum. The width of the pit was thereby increased about an inch. A short drain from chamber 27 which emptied into the cesspit at this time measured 4·5 ins. wide by 6 ins. deep and was covered with bricks laid on their flats.[2]

The western courtyard remained the same size as before, about 42 feet square, and was roughly and unevenly paved with three courses of brick.[3] In its south-eastern corner there was a circular bread-oven, almost intact, 3 ft. 8 ins. in diameter and a little over 3 ft. 6 ins. high (Pl. XXXV, f). Its roof, which was probably domed, was unfortunately missing. The door of this oven was 1 ft. 6 ins. wide at the base and its sides sloped slightly inwards. The top of the door was apparently pent-roofed, as a brick was still *in situ* in this position. This is the first bread-oven found at Mohenjo-daro and the courtyard of the Palace was quite a fitting place for it.[4]

[1] We have, however, no evidence that Mohenjo-daro was ever in serious danger of raids, save in the last stages of its decline.

[2] The floor of its channel was 15·2 ft. below datum.

[3] At the average level of 15·2 ft. below datum.

[4] Doubtless, after this oven had been heated thoroughly by burning fuel inside it the ashes were removed. As in Mesopotamia to-day, the pieces of dough were probably clapped round the hot interior and the oven then closed. Very similar ovens have been found at Tell Asmar in Mesopotamia Frankfort, *Illust. Lond. News*, July 15, 1933, p. 100, fig. 15.

In the N. W. corner of this court a human skull and a few bones were unearthed at the level −16·9 ft. Surrounded by broken bricks, this was probably a burial of later date, though of what period it is impossible to say. From the position of the head and bones, the body seems to have been thrust down to the bottom of a deep hole.

In the S. W. corner there lay a number of pieces of burnt mud-plaster bearing the impression of the matting, made of whole stems of reeds, upon which it had once been spread in the construction of a ceiling or roof. These bits of burnt roofing-material seem to have been thrown out of room 32 of the S. W. wing whose walls show evidence of a conflagration, and they resembled the piece illustrated in Pl. CVIII, 17.

The 3 ft. 6 ins. wide stairway by which the upper floor or roof of the western wing was reached is of unusual interest in that it had a definite landing. Built against the southern and western walls of room 28 of that wing which measures 17 ft. 1 in. long by 16 ft. 3 ins. wide, it commenced with a short flight of three steps, the lowest of which was 15·7 ft. below datum. A landing at the level −14·8 ft. was followed by another and longer flight at right angles, whose treads, 7 ins. broad by 8 ins. high, were 3 ins. higher than those in the lower flight. This staircase reached a height of 11 ft. and it therefore still appears in the plan of the Late II Phase (Pl. XIX), for its upper part was probably in use even then. There is no doubt that this staircase was built with a right-angled turn to obtain as great a height as was possible in the limited area at the builder's disposal.

The southernmost room (31) of the western wing was probably another domestic office, for jutting out from its western wall was a roughly-built partition enclosing a little pavement from which a drain passed out through the doorway to the courtyard, across which it probably reached the drain in the long passage. The southern jamb of the rather wide doorway of room 31 was rabbeted to take a wooden door, a very unusual feature at Mohenjo-daro. A door was also fitted into the 5 ft. 11 ins. wide doorway from the court into the double room 29, 30; for in the northern jamb there was a bolt hole, 8 ins. wide by 11 ins. high by 14 ins. deep, placed 4 ft. 3 ins. above the sill. As these doorways were the only means of entry to the remaining ground-floor rooms of this wing, and possibly to a series of rooms above, it is clear that some degree of privacy was sought for their occupants.

The southern part of the Palace was divided into quite separate suites of rooms by the central corridor already mentioned. Two curious kilns on the eastern side of room 33 of the S. W. wing each measured some 3 ft. 3 ins. in diameter at the top, though the flat base of the northern one was 2 ft. 10 ins. in diameter and of the other 3 ft. 2 ins. Both were 4 ft. 3 ins. deep, and paved with brick, and round the inside of each was a 4-inch ledge, but not at the same height (Pl. XXII, 4). The bricks used in their construction were wedge-shaped and laid with mud-mortar, and their walls had been carefully plastered with mud. Their tops (Pl. XXXV, a) were only slightly above the level of the door-sill east of them.[1]

From the vitrification of the mud-lined walls of these pits, it is evident that they were used to fire objects at a high temperature, the fuel used being either wood or charcoal, of which the white ashes still remained. The ledges mentioned above were probably intended for the support of a crucible, or, if we assume

[1] This sill was 16·8 ft. below datum.

that the kilns were used for glazing, a grating may have rested on the circular ledge in each. I am inclined to think that these kilns were used for something more fusible than copper, owing to the lack of a draught or vent in their lower portions; but, most unfortunately, no objects were found in their vicinity to aid us in determining their use with certainty.

On the southern side of the passage leading from the main corridor into this room (33), there was a well-constructed niche, 4 ft. 5 ins. wide and 2 ft. 9 ins. deep, with its sill at the level −16·7 ft. This was not a blocked-up doorway, and as it was raised for re-use in the following phase it has been included in the Intermediate I plan also. Very possibly it was intended, with a wind-scoop above, to ventilate the room which must have been very hot from the kilns. This compact little wing seems to have been occupied by an artificer who probably used rooms 32 and 66 as his quarters, room 33 as his workshop, and the little inner apartment 67 as a store-room. It has already been mentioned that there are indications of a conflagration having occurred in room 32 at some time during this period, which is not surprising in view of the presence of the kilns in the adjacent room.

The arrangement of the rooms of the massively constructed southern wing is a little difficult to understand. Besides the main entrance to the Palace at the western end of its southern wall, there was apparently a small postern door into the vestibule-like chamber 77. Beneath this door also a drain ran out from the interior of the Palace. Room 76 and its little side-room 69 were cut off from the rest of the wing and may have been occupied by a door-keeper or guard, but the exact purpose of the other rooms is obscure.

As might be expected in a building of such size and importance, there were two wells in use, one in room 19 in the southern wing and the other on the southern side of the eastern courtyard. The well-room 19, which is 11 ft. 10 ins. long by 7 ft. 9 ins. wide, was entered from the north-west up a short stairway 3 ft. wide, whose lowest tread was at the level −15·8 ft. (Pl. XXXV, e); but no paving of this phase had survived, though a portion of that of the previous occupation was found at the level 19·6 ft. below datum. The internal diameter of this well is 2 ft. 10 ins. and its coping was eventually raised to the level 8·4 ft. below datum, *i.e.*, it was used as late as the Late III Phase. The apparent door in the eastern wall of this room was probably merely an outfall for spilt water to the cesspit outside in Crooked Lane. This well probably supplied the water required by the occupants of the western and southern wings of the Palace, whereas the second well (Pls. XXVIII, b; XXXV, b) perhaps served for washing down the courtyard and supplied the wants of guard-rooms and possibly servants' quarters. The top of this latter well, on either side of which heavy masonry projects out into the court, is now 6·6 ft. below datum; and though its steening has been exposed down to the base of the Intermediate III stratum there is no direct evidence that there was a pavement round it at any period.

This eastern court was rather smaller at this period than during the Intermediate III Phase. A thin wall running from east to west and then at right angles towards the south cut off a strip of somewhat irregular shape to make two extra rooms; in fact, an extra wall was placed between the main entrance from the north and the rest of the Palace. As there are no definite signs of this wall having been raised, one small portion only has been included in the plans of the subsequent occupations. Between this part of the new wall and the eastern

wall of the central corridor 71 there was now a stairway, 5 ft. wide, of which seven steps remained, each 7 ins. broad and 8·5 ins. high, the level of the lowest tread being 16·4 ft. below datum. A further flight of steps was added towards the south in the Intermediate I Phase (Pl. XVIII), a landing being left between the earlier and later flights. In both phases this staircase would have given access to the upper rooms or roof of the southern wing by way of the roof of the central corridor.

Though changes had also been made in the eastern wing (III), the thin walls in both the halves into which it was divided by a cross-wall were evidently of little importance. Apparently a jumble of small erections was set up in what were two more or less subsidiary courtyards to serve such purposes as the housing of servants, the storage of merchandise, or, as suggested before, as stables for cattle or pack animals. The square pavement against the western wall of the southern part at the level –15·8 ft. below datum was surrounded by a thin wall only half a brick thick and may perhaps have been a privy, though no trace was found of a drain. The entrances to this wing from the eastern court (Pl. XXVIII, a) are some 17·4 ft. below datum.

In the northern wall of this wing (III), were four beam-holes in a row with their lower edges an average of 12 ft. below datum. Of these holes, which ranged in size from 1 ft. 2 ins. high by 1 ft. wide by 8 ins. deep to 1 ft. 6 ins. high and deep by 11 ins. wide, three were close together with interspaces of only 8 ins.; the westernmost, however, was 5 ft. 6 ins. distant. The other ends of the beams could hardly have rested on the cross-wall at a distance of 24 ft. 6 ins. They more probably had some support in the middle of this space, though no traces remained of piers.

Six feet below these four beam-holes was a footing which could be traced round the whole of the wing. This footing marks the level from which the walls were raised and it is seen that the Intermediate II masonry was not strictly in alignment with the walls of the previous period. A building with its roof only 6 ft. high can hardly have been of any significance; and perhaps the beams inserted in these beam-holes supported a roof which served merely to protect merchandise or stores (Pl. XXVIII, a).

The long, well-preserved drain that ran westward along Crooked Lane from the S. W. corner of the east wing had a channel 8 ins. wide by 9 ins. deep. With the floor of this channel 17·6 ft. below datum at its eastern end, there was a fall towards the west of 2 ft. in a distance of about 165 ft.

In this phase, V, VI and VII apparently constituted a single large house, possibly the residence of an official. The majority of the rooms appear in the plan not to communicate; but only the foundations of the walls now remain, so that it was impossible to determine the positions of the doorways. There is, in consequence, little of interest to record save the survival of a stretch of pavement in the north-west corner of room 35 at the level 15·2 ft. below datum, *i.e.*, for drainage purposes rather above the level of the near-by door-sills. Part VI of this house is seen in the middle distance of Pl. XXXVI, b.

The courtyard (V) was very much dilapidated; but it appears to have been entered through the passage 43 from a doorway, 6 ft. 6 ins. wide, in Fore Lane This doorway was subsequently blocked up, but while in use, it should be noticed, it was defended by a long curtain wall which prevented direct access from outside into the court.

The main entrance to the house was from the south immediately beside the main entrance to the Palace. This doorway, too, was masked by a curtain wall and those who entered had to traverse a long corridor (57) to reach the living-rooms.

Owing to its position at the edge of the mound, but little remains of House VIII, though its plan can be reconstructed with some certainty. The sills of the three entrances from the narrow alley on its western side, which averaged 18·7 ft. below datum in the Intermediate III Phase, were raised 1 ft. 6 ins. in the next occupation. We were unable to include this building in the plan of the Intermediate III Phase as it has not been completely excavated; but the photograph Pl. XXXVI, b, shows its remains in the foreground.

Intermediate I Phase (Pl. XVIII). Average level: –13 ft.—By this period the general level of the city had so risen that the levels of the pavements and the door-sills of the Palace now ranged between 15 ft. and 12 ft. below datum. This building with its two large courtyards was somewhat simpler in design and gives the impression of being rather less prosperous, though this may be the effect of damage done later and the dismantling of walls. The main entrance was still at the southern end of the former central corridor, but it will be seen in the plan (Pl. XVIII) that radical changes had been made in this corridor and its arrangement. The northern section (71) which was 6 ft. 6 ins. wide at this level was blocked at its southern end by a thin wall, which with another at the west of the former bend enclosed a room, 8 ft. 6 ins. by 7 ft. 6 ins. in size, paved with two courses of bricks at the level –13·6 ft. This new room probably had some connection with the well-room (19), which could now only be approached through it from room 70 of the S. wing. The southern half of the central corridor led as before to the S. E. corner of the western court with doors into rooms 33, 66 and 70. The entrance to the former guard-room (76), however, was now bricked up, but what alternative entrance was made to this room and No. 69 we were unable to ascertain.

Curiously enough, there was no entrance anywhere along the great northern façade of the building during this phase—for what reason, it is very difficult to see, and the conjectured use of the N. wing for the accommodation of a guard would have been discontinued in consequence. But a new, and for its position a strangely imposing doorway, 5 ft. 3 ins. wide, was made to give access to the well-room 19 from Crooked Lane through room 22. The jambs of this entrance, whose sill was 13·1 ft. below datum, were 3 ft. 2 ins. thick; they still stand 8 ft. high, but the doorway was blocked up again during the later occupations. Between the vestibule (22) and the well-room a doorway of equal width was made with its sill some 10 ins. higher. This also was in use as a door during this phase only; in it a little stairway was built in the next occupation, after which it was bricked up. Traces of the pavement of the well-room at the level 12·8 ft. below datum still remained; and room 22 was also once paved.

The western wing underwent very little alteration during this period save the necessary raising of the floors and door-sills. There was again a drain from room 27 into the cesspit in Fore Lane but at a higher level; the doorway from outside in the adjacent room 26, 64 no longer existed. Room 31 (IV) apparently served the same purpose as before, though all trace of drainage to Crooked Lane had disappeared.

The staircase against the western wall of room 28 was again in use in this and later periods with the necessary extra treads added at the top. The doorway between this room and No. 27 was narrowed from 6 ft. 9 ins. in width to 3 ft. 9 ins.

by building a new jamb against the former eastern jamb, though the entrance to it from No. 29 remained as before, 5 ft. 2 ins. wide. Some slight evidence was found that room 28 had been paved at this period at the level 2 ins. below the door-sills.

The western courtyard remained unaltered save that there was now no oven, and the entrance to room 32 which was 4 ft. 10 ins. wide in the previous period had been narrowed to 3 ft. 5 ins. by the addition of a second jamb on its western side. Against the wall of the western wing we found a large stack of bricks, about 6 ft. high, neatly piled to take up as little room as possible. The base of this stack was 14·4 ft. below datum and it is probable that these bricks had been collected for re-use. They were of the usual sizes, and that they had been taken from other buildings was evident from the remains of mud-mortar adhering to them.[1]

The south-west wing which otherwise preserved the arrangement of the previous phase was apparently no longer used for the same purpose, for there was no trace of any kilns. In the southern wing, besides the changes already mentioned, the doorway from room 22 into the central room was blocked up, so as to prevent any one entering from outside having direct access to what were probably the living-rooms.

A second flight was now added to the stairway to the east of the long passage-way 71, an interval between the two flights being left as a landing. This added upper flight was 5 ft. 3 ins. wide with steps 4·5 ins. broad and 5·5 ins. high, the level of the bottom step being 13·4 ft. below datum. This stairway would have given access to the roof of the passage-way and thence to the upper rooms or roof of the south wing of the Palace.

At this phase the eastern end (III) of the Palace appears to have been an open court; any structures that it may have contained had all been dismantled. The middle portion of the wall that bounds it on the west was also missing, and there may or not have been a doorway in it as before, in addition to the door at its southern end which was retained in use. The top of the fragment of masonry in the middle of the court, which is all that remained of the wall that in the previous phase subdivided this courtyard, was some 12·3 ft. below datum. The earlier wall was probably raised in the Intermediate I Phase, but had been almost entirely removed by brick-robbers. Neither this court nor the eastern court of the Palace was ever built on again.

Houses V, VI and VII at this time underwent a considerable amount of alteration. The western wall of the court (V) was re-built rather further to the west, and in the eastern half two rectangular piers were built which averaged 3 ft. 8 ins. by 2 ft. in size and when unearthed still stood 3 ft. high.[2] When the house of the Late III Phase was built, the whole of this court was filled in with sun-dried brick and mud-mortar to make a platform above the reach of possible floods.

In the northern end of the passage 42, 43, a stairway, 3 ft. 8 ins. wide, was built, with eight treads, each 8 ins. broad and 7 ins. high.[3] This stairway led up from Fore Lane along the roof of the passage to the upper part of the house and also, may be, to the roof of a building in the court, of which the two piers were perhaps the supports.

[1] At Ur also there has been found a stack of some 200 bricks which were evidently surplus to requirements after the finishing of Dungi's mausoleum. Woolley, *Antiquaries Journal*, vol. XII, p. 358.

[2] Their base level was 12·9 ft. below datum.

[3] The level of the lowest step was – 14 ft.

The well-room (38) was entered from the south through a doorway, 3 ft. 5 ins. wide, with its sill at the level −13·2 ft. As will be seen in Pl. XXXVI, a, the two pavements in this well-room, which were separated by a thin wall, were at different levels; the upper one 12·3 ft. below datum and the other 9 ins. lower.

In the little passage (36) south of this room, a rectangular pavement, 4 ft. 6 ins. long by 2 ft. 8 ins. wide, surrounded by an edging, one brick thick, drained into a rectangular soak-pit just west of it. The purpose of a third pavement in the south-eastern corner of 35 is very obscure. It seems not unlikely that 35 together with 55 and 66 were now an open court, from which there were entrances to all the surrounding rooms.[1] In it were a number of roughly built walls averaging 3 ft. high, at whose use we can only guess; they may have been rough shelters for animals.

In the centre of room 51, a carefully constructed rectangular pit, 5 ft. 6 ins. by 4 ft. 3 ins. by 4 ft. 6 ins. deep, was surrounded by broken fragments of paving, 12·2 ft. below datum. Its sides were one thickness of brick and its floor neatly paved. In it was found a quantity of copper ore in small pieces, together with a little piece of lead; and it is quite possible that a metal-smith worked here with a furnace in the close vicinity, which has entirely disappeared. It will be remembered that in the previous period there were two kilns in the S. W. wing of the Palace. With the memory of the conflagration that took place in his quarters still alive, it may have been thought advisable in the following period for his successor to be moved outside the Palace.

A stairway at the eastern end of the passage 57, 4 ft. 8 ins. wide and with its lowest step 14·4 ft. below datum, apparently led to the roof or an upper storey.

An interesting feature of the eastern portion of the Palace at this time is a series of six buttresses of various sizes, five of which supported the foundations of the southern wall and one the eastern wall. These buttresses stood some 2 ft. high with their bases at the level −16·5 ft. They were in reality of Intermediate I date, though they are shown in the Intermediate II plan as their tops were concealed beneath the earth from the time when they were built. Each was built with a slant in order to exercise as much pressure as possible against the foundations of the wall to be supported.[2]

Late III Phase (*Pl. XIX*). *Average level : −9·9 ft.*—In this phase we see a general simplification of the Palace, which was, in fact, converted to quite other uses in the following Late II and I occupations. It is beginning to lose its coherence and, no doubt, the history of its former greatness was already being forgotten.

The doorways from the western courtyard into the line of rooms along the northern wing of the Palace were all blocked up, and this wing may possibly not have been used at this time. The walls of the rectangular structure (23), 10 ft. 3 ins. long by 6 ft. 9 ins. wide by 8 ft. 8 ins. deep, just outside the blocked-up doors of room 25 were only one brick thick and it was unpaved. A cross-wall divided it into two and it may have been a bin for the storage of two kinds of grain, set partly below ground for the grain to be protected. As the top of this pit reaches

[1] The sills of these doorways average 12·2 ft. below datum, the range of difference being only some 5 ins.

[2] Similar but smaller buttresses supported the southern walls of Blocks 4 and 5 in the Intermediate I Phase.

to the Late II level, it has been included in that plan also; it may, indeed, have been in use during both periods. To the west of this apparent bin was another of smaller size, 5 ft. by 2 ft. 1 in. by 3 ft. deep, with its top 11·7 ft. below datum.

The western wing (IV) of this date had suffered a great amount of damage; but enough was left to show that it underwent no radical alterations, though it may have been turned into a separate residence.

The south-west wing (II) also appears to have become a separate residence, for though some of the doorways were the same as in the Intermediate I Phase (Pl. XVIII) and in an excellent state of preservation, with their sills averaging 9·3 ft. below datum, the entrance from the great western court was bricked up. The Late III masonry of this house was sadly dilapidated at the south-western corner, and the shaded walls in the plan are those of Intermediate I date.

Once more the well-room 19 was entered from the north-west only, by a little stairway of four treads from the room (14) which was made by closing off the bend of the long central corridor in the previous phase. This room was entirely shut off from access from the western court and wings; nor was there any entry from the northern part of the former corridor or from the eastern court, so that the use of the well was restricted solely to the occupants of the former southern wing, now in effect a self-contained house of moderate size. At the same time the entrance of Intermediate I date from Crooked Lane to room 22 was blocked up, and the house was entered solely from the southern end of the central corridor by a wide doorway into room 12 (the former rooms 76 and 69 thrown into one).

The upper portion of the well at this period is seen in Pl. XXXV, d. It is interesting to notice that its steening stood high above the pavement instead of projecting only the thickness of a brick above it, as was the usual custom of the city. Above pavement level the outside of the steening was smooth and quite unlike the outsides of the well steenings that were destined to be entirely hidden in the ground. Only one other such coping has been found, in House I, Bl. 23, of the Northern Section, and probably in both cases the coping of the well had been raised to protect the children of the household from meeting their deaths by drowning.

The small pavement in the S. W. corner of room 22 at the level 10·5 ft. below datum was partitioned off by a thin wall on its northern side. There were also traces of the remainder of the room having been paved at a rather lower level. A shallow flight of steps, 5 ft. 3 ins. wide, with four treads, 11 ins. broad and only 5 ins. high, the lowest 10 ft. below datum, led down from the well-room into room 22. In the subsequent phase a wall was built across the top of these steps, which entirely shut off room 22 from the rest of the building.

There was no point of interest in the eastern court at this time. The staircase against the wall of the passage 71 reached the level −6·9 ft., but it is difficult to say whether it was added to in the Late III and II Phases, or whether the upper part also was built in the Intermediate I Phase. No line of demarcation was to be found between the eastern court of the former Palace and the western court of the annexe (Block 4); the dotted line between the two is a more or less conjectural restoration from a small piece of walling at the southern side of this wide open space.

On the mud-brick platform in the courtyard of the big house of earlier days to the west of the Palace, an important little house (V) was built in the Late III Phase. But, unfortunately, owing to denudation its entrance could not be located.

Two piers in the E.-W. axis of the court (46, 47), with foundations 9·7 ft. below datum, show that a part, if not the whole, of this court was at one time roofed over. Very little remained on the site of the southern wing VII of the former large house. What did remain showed a large amount of alteration from the original plan; the well-room (39), for instance, was entered from the west instead of the south. The remains of the Late III pavement of this room which lay 10·1 ft. below datum are seen in Pl. XLIX, e.

The steps in passage 57 are a continuation of the stairway constructed in the Intermediate I Phase and reached the level 10·4 ft. below datum.

Late II and I (b and a) Phases (Pl. XX). Average levels : −7 ft., −5 ft., and −3·2 to +0·8 ft.—The decline of the former Palace into a group of unimportant dwelling-houses gives a measure of the downfall of the city prior to its abandonment.

Since this part of the mound was high, some of the house walls are fairly lofty and in them is seen masonry of three sub-periods (Late III, II and I, b and a). Only the two western rooms of the former north wing of the Palace were rebuilt, and they quite possibly merely served as store-rooms or servants' quarters for House IV, the former west wing of the Palace. This house was in a very ruined state, what little remained of the walls being roughly patched up. As before, its chief point of interest was the stairway, still 3 ft. 6 ins. wide, in room 28, whose steps averaged nearly 8 ins. broad and little less than 9 ins. high.[1] The top of this staircase reached to 5·2 ft. below datum and a narrow guard-wall, one brick thick, had been built on the east of it. How many of its upper steps, if any, were actual additions in this period, it is impossible to say, and, in consequence, it is not shown in the plan. The arrangement of the southern end of this house is very uncertain and will be referred to again in connection with House VII.

The little House II differed in no important aspect from its arrangement as the S. W. wing of the Palace. But it appears to have been enlarged by the enclosure at its southern end of part of the entrance corridor of the once large house immediately to the west of the Palace. The southern wall of this corridor disappeared in the Late III Phase, probably owing to the activities of brick-robbers. The room (3) thus added to House II was paved at the level 8·2 ft. below datum, *i.e.*, during the Late II occupation, and its walls when cleared stood nearly 3 ft. high.

The former central corridor of the Palace (8, 9) still led to the western courtyard (10), but it was now apparently public property and probably not roofed over; it had, in fact, become a lane.

House I, the former south wing of the Palace, appeared to be a self-contained dwelling-house, as in the Late III Phase, entered, as before, from the west through an entrance hall (12). Room 18 was a large apartment with two doorways, one in Crooked Lane and a narrower one from the entrance hall. There was a difference of 2 ft. 6 ins. between the levels of their door-sills; in fact, the outer door which had the higher sill,[2] was made in Late Ib times, whereas the other door dated from the Late II Phase. Some thin walls of Late II date at the northern end of the room, which blocked a doorway that in the Late III Phase led into room 13 formed two bins, a little over 2 ft. high, that were doubtless used for storing provisions.

[1] These differ slightly in size from the lower treads; but this small difference may be due to repairs.

[2] 5·32 below datum.

The shape of the well-room 19 had become somewhat complicated owing to the continual alterations that accompanied the raising of steening, floor and walls. The coping of the well was by now only 8·4 ft. below datum and the remains of the dilapidated pavement some 3 ins. lower, both being of Late II date. The doorway from the well-room into room 14, originally 4 ft. wide, had in the Late III Phase been reduced in width to only 1 ft. 8 ins., and it remained so until the site was abandoned. In the door in the southern wall of room 14, which had been in use since the Intermediate II Phase, two treads remain of a little staircase apparently of Late II date.[1] It is possible that the block of masonry at the N. E. corner of the well-room is the remains of a stairway that was built down into the room in the Late I Phase to make it accessible from the outside after the general level had risen. Other examples of the building of stairways down into well-rooms of earlier date are known elsewhere in the DK mound.

The thick walls of corridor 71 may have been raised at this period—they even now reach the level 5·5 ft. below datum, but the reason for so doing after the corridor had been blocked is somewhat obscure. Against its eastern wall, the old stairway still survived to the level −6·9 ft., though the upper portion had been torn down.

The double bin on the northern side of the western court seems to have been in use during at least two phases of the Late Period.

The former eastern court of the Palace together with court III remained an open space, where quarrying for bricks of the earlier periods still went on from time to time, with the result that a large irregular hollow was made, which towards the latter end of the Late Period was filled up with waste material from potters' kilns. Very few antiquities were found in this waste which consisted mainly of potsherds of the type illustrated in Pl. LV, Nos. 17 and 18.

The great wall to the north of this open space survived into the Late II Phase with a doorway in it, 5 ft. wide, whose sill was 8·2 ft. below datum.

Of House V little but the foundations of the Late II and I Phases remained; the doorway on its southern side must date from that time as its sill is 8·5 ft. below datum. The long passage (42, 43) on the eastern side of the house still survived, though the doorway at the southern end of its eastern wall was blocked up some time during the Late I Phase. The bricks used to block this doorway, whose jambs stood a little over 1 ft. 6 ins. high, were set on edge. On the eastern side of the courtyard or room 46 there was a small pavement, 3 ft. 7 ins. square, at the level 8·8 ft. below datum, with an edging of brick, 2·5 ins. high. The piers in this room or court that supported a roof in the previous phase were raised and again put to use. And a thick partition wall extended part-way across the western side of the court from the northern wall.

Though a House VI of Late III date clearly had existed, for a fragment of the S. E. corner still survived, it was evidently completely dismantled after the abandonment of the city between the Late III and II Phases, of which abundant evidence has been found elsewhere. The two small houses built on this site, apparently in Late I days were in a very dilapidated state; their western sides had been entirely destroyed. A narrow alley between the two, rather over 2 ft. wide, opened from the 4 ft. 7 ins. wide lane (40) that now existed where once was a passage in what was probably the mansion of a palace official. Later, this little

[1] These treads are each 5 ins. broad and 6 ins. high, and the level of the lower tread was 7·9 ft. below datum.

alley-way was blocked up. A small privy at the southern end of room 51, 3 ft. 6 ins. square and surrounded in the usual way by a border of bricks placed on edge, drained into a paved sediment-pit in the lane, that was roughly 2 ft. 3 ins. square and only 7 ins. deep when found. This privy was only 4 ft. below datum and therefore of Late I date. From the sediment-pit a long drain, which also served the well-room 38 in House VII, ran southwards down the middle of the lane with a drop of 1 ft. 3 ins. in some 34 ft. from the level −5·6 ft. near the pit. Its channel which was 7 ins. wide and deep was covered with bricks of various sizes laid flat.

House VII also suffered badly from the depredations of brick-robbers on the re-occupation of the city at the beginning of the Late II Phase. In the Late Ib Phase, it was rebuilt on a different plan, but was found to be very dilapidated when cleared, especially on its eastern side. The entrance to this house was evidently from the south. The well-room 38, 39 was repaved in the Late Ia Phase level with the coping of the well, some 2·9 ft. below datum. The latter, whose inside diameter is 2 ft. 10 ins., was lined with moulded, wedge-shaped bricks, 10·25 ins. long by 3·5 ins. wide and 2·25 ins. thick. A drain, 8 ins. wide by 8 ins. deep, beneath the Late Ia pavement emptied into a drain in the lane 40 described above. A photograph of this well-room (Pl. XLIX, e) shows some of the earlier masonry beneath and round about it. This room was now entered from the north by a doorway, 5 ft. 3 ins. wide. Curiously enough, though the Palace wall was situated right up against this doorway, it had existed as far back as the Intermediate II Phase. Its jambs were followed down to that level, traces of the pavements of the Intermediate I and Late III Phases being evident upon them. It is probable that the occupants of the house built on the site of the former west wing of the Palace were permitted access to their neighbour's well throughout the Late Period.

The following levels of the tops of some of the walls in this block indicate the undulation of the surface of the mound. S. E. corner of House I, −3·6 ft.; N. W. corner of room 13, House I, −9·2 ft.; N. W. corner of room 32, House II, −6·3 ft.; N. W. corner of House IV, −6·4 ft.; S. W. corner of House V, −7·9 ft.

Block 1A. (*Pls. XVI-XX; XXXIII, b; XXXVI, b; XL, d*).

Intermediate III Phase (*Pl. XVI*). *Average level: −20·4 ft.*—This exceptionally interesting block is situated at the edge of the mound and has suffered badly from denudation, so that the southern portion has disappeared, though part of its foundations may be unearthed in the course of further excavation. Its chief interest lies in the double staircase at the end of a wide passage, an architectural feature that is so far unique at Mohenjo-daro. Each flight is about 3 ft. 4 ins. wide and a space of 1 ft. 8 ins. separates the two.[1] The treads are 8·5 ins. broad and only 2·25 ins. high; indeed, they are remarkably shallow compared with the steep narrow stairs that were customary in the ancient city. In the open space between the two flights of steps there was a drain which is seen in Pl. XXXIII, b, but being of Intermediate II date it is included in the plan of that phase (Pl. XVII). An earlier drain undoubtedly lies below it. There may originally have been a ramp, 10·5 ins. wide, on each side of this double stairway and also one in the middle, for the remnant of a thin wall still guards the outside of the western flight.

[1] The lowest step is 20·5 ft. below datum and the highest that still remains is a trifle over 3 ft. higher.

Despite the great amount of destruction that has taken place, the foundations of the two flights of steps run back 21 ft. Eighteen treads remain in the eastern, and thirteen in the western flight and the height to which the stairway rose, if it was continued right back to the limit of its foundations, would have been about 5 ft. 7 ins. The whole appearance of it is quite imposing.

In the foundations of the eastern flight there is a gap, 2 ft. 9 ins. wide, at a distance of 3 ft. 9 ins. from the southern end. This space was roughly blocked up on the eastern side and it may have served as a cesspit in connection with the drain between the two flights of steps.

The bricks used in the construction of this remarkable stairway measure 10·5 × 5·45 × 2·14 ins. They were beautifully laid and are, even now, semi-polished by the bare feet of those who used the stairs. Resting upon a part of the eastern flight was a curious structure, some 3 ft. by 2 ft. 7 ins., which is clearly seen in the photograph (Pl. XXXIII, b). A hole through it from north to south is 8 ins. high by 5 ins. wide, and judging from the comparative roughness of the brickwork inside this hole, it seems likely that it was built about a rectangular piece of wood. But though a balustrade immediately leaps to mind, there is no corresponding hole in the masonry that faces it to the north.

The passage, 9 ft. 7 ins. wide, in which this double staircase is situated was entered from the west by a doorway, 5 ft. 9 ins. wide, which was subsequently narrowed to 3 ft. 3 ins. At an earlier period there was a doorway, 3 ft. 7 ins. wide, in the wall that flanks the western flight of steps, but it was blocked up when the stairway was built against it.

High in the wall (6 ft. 4 ins. above the footing) at the northern end of the parallel passage there is a projecting brick on which a lamp was placed, to judge by the smoke-stains that were still clearly discernible. The brick now projects 3 ins. from the wall, but possibly it once formed quite a large bracket—the end is broken off—and its surface is slightly hollowed. This lamp bracket is quite possibly of Intermediate III date; there is no evidence of its having been inserted in the wall at a later period.

It appears that the original design for this part of the building provided for two rectangular piers, 5 ft. 8 ins. apart, instead of a continuous wall between the two passages 93 and 58. But the space between was subsequently filled in with masonry to form a long free wall, possibly for greater support to the upper storey or stories. A second staircase (Pl. XL, d) between the corridor 58 and a large room (59) is 6 ft. 9 ins. wide and differs remarkably in its steepness from the very shallow staircase in the same building. Its twelve remaining treads average 8 ins. high and broad. This stairway was built of bricks of two sizes :— 10·25×5·7×2·5 ins. and 10·9×5·4×2·25 ins. The lowest tread was 18·5 ft. below datum, and it is uncertain at present whether these stairs should not be attributed to the Intermediate II Phase; though the level is certainly low for that date, the building, it should be remembered, lies on the outside of the mound. This stairway is therefore included in the plans of both phase (Pls. XVI; XVII).

There are no less than three doorways to room 59, which though it has no particular interest from the architectural point of view is noteworthy in that it was burnt out—a very unusual feature in the houses of Mohenjo-daro. On the northern wall, in consequence, we see patches of the original mud-plaster preserved by the accidental firing.

The two small cells 85 and 86 could hardly have served any other purpose than, filled in, to form a platform for some other structure. Possibly the space between them and the steep stairway north of them was bridged in some way, and they supported either a continuation of the stairway or a second flight of steps.

It is much to be regretted that a building of such interest should be so ruined. Apart from its unique double staircase, its massive walls ranging from 3 ft. 7 ins. to 5 ft. in thickness and the excellence of the masonry show it to have been of unusual importance. Further clearance would undoubtedly enlarge its ground-plan, but it is doubtful whether any thing more will be found above foundation level. We have cleared a little way beyond the double stairway to the south without finding other walls, and, unfortunately, a dump on which our trolley line was laid will have to be removed before further progress in this direction can be made (Pl. XXXIII, b). For the present, then, the nature of the rooms or possible great hall to which this imposing stairway led up is an open question. A distant view of this most interesting block is seen in Pl. XXXVI, b.

Intermediate II Phase (Pl. XVII). Average level : – 15·9 ft.—Owing to denudation through its exposed position, practically nothing remains of this block in the Intermediate II Phase and subsequent occupations, except the top of the steeper staircase and of some of the walls.

The long straggling drain along the southern side of the western end of Block 1 is of the Intermediate II Phase with a channel 8 ins. wide and 1 ft. 4 ins. deep. As already pointed out, its southern end overlies a drain of the Intermediate III Phase, which we have not yet cleared. At its western end the channel is 19·8 ft. below datum, and between the double staircase 1 ft. 6 ins. lower. This drain was found to be covered throughout its length with bricks laid flat but is not particularly well constructed.

Block 2 (*Pls. XVI–XXI ; XXXVI, c, e ; XXXVII, f ; XLVIII, e ; L, b*).

Intermediate III Phase (Pl. XVI). Average level : – 20·4 ft.—Practically nothing now remains from Intermediate III times save a few dilapidated walls and fragmentary patches of pavement. Only the northern wall of the block remains comparatively intact and its north-eastern corner, whose angle is markedly obtuse.

Intermediate II Phase (Pl. XVII). Average level : – 15·9 ft.—The buildings of the Intermediate II Phase were far better preserved and House II especially deserves a brief description.

From the contours of the ground, it appears that the southern limit of this block was a street as wide as, if not wider than, Central Street with which it was parallel. But owing to the great amount of denudation we have found no actual remains of this street at the level to which we have dug. It appears simply as a wide ravine between the limit of our excavations in this part of the DK mound and other high mounds beyond. Rains and floods have clearly broken through this way to the lower ground to the west.

Of House I very little remains (Pl. XXXVI, e). The sill of the intact doorway on the eastern side of room 2 is 15·1 ft. below datum, and at a higher level this doorway was again in use in the Intermediate I Phase.

The House II of this date was quite well preserved except at its southern end. The sill of the doorway, 4 ft. 10 ins. wide, between rooms 25 and 26 was 15·8 ft. below datum, practically the same as that of the doorway in the wall that divides rooms 23 and 25 from one another. A staircase against the southern wall of room 25 was 3 ft. 9 ins. wide and was ascended from the west by the usual steep narrow treads, of which four remained, 7 ins. broad and 9 ins. high. A small patch of paving to the east of this stairway suggests that the whole room was once paved. The best preserved feature of this house is the large extent of carefully laid paving in rooms 26 and 27. The bricks which measured 11×5·5×2·5 ins. were set on their longer edges, and there were five basin-like depressions in the floor—possibly originally there were more—which averaged 22 ins. in diameter and served to take the somewhat pointed bases of large pottery storage jars. These depressions were constructed with wedge-shaped bricks set slantwise in a circle.[1] The probable close proximity of an important street to this house makes it quite likely that it was a place of refreshment like the undoubted tavern found some time ago close to First Street in the VS Area.[2]

Just north of House II a very curious round construction was unearthed, which could only have been a washing-place (Pl. XXXVI, c), 4 ft. 9 ins. in diameter, it was built with wedge-shaped bricks, 11×3–5·75×2·5 ins. The circular pavement sloped gently downwards to the middle, where a large jar whose mouth was 2 ft. in diameter was sunk in the ground. A brick rim round the outer edge of the pavement stood 2 ins. high. As the level of the paving immediately round the edge of the jar was 14·8 ft. below datum, this washing-place is included in the plan of the Intermediate II Phase, for ablution platforms were frequently built at a higher level than other pavements of the same date. It is, however, quite possible that this structure should be assigned to the succeeding phase.

House IV was a mere jumble of masonry, from which it was difficult to make any definite plan. There were three entrances from the south with their sills at an average level of – 17 ft., the deviation between the three being less than 2 ins. There appears also to have been another door in the northern wall of the passage-like room 20, for there are two vertical lines on the inside of the wall, though there is no sign of door-jambs outside, perhaps owing to its being refaced.

A bin of the kind seen in the north-eastern corner of room 21, which was doubtless provided to hold various household belongings, is a common feature of many of the poorer Indian houses of to-day.[3]

The section of Crooked Lane on the northern side of this block averages 5 ft. wide. The well-built drain at its western end is described in connection with Block 4. It is uncertain whether the very narrow alley between Blocks 2 and 3, which averages only 2 ft. 6 ins. wide, was ever used as a passage; during this period, at all events, it was blocked up at its northern end from the level 19·3 ft. below datum. Spaces between important buildings are quite a usual feature of Mohenjo-daro, though they are not often as wide as this

[1] The average level of both pavements was 15·6 ft. below datum.

[2] *Mohenjo-daro and the Indus Civilization*, pl. LIV, a.

[3] Room 21 measured 16 by 14 ft. and like No. 19 was once roughly paved at the level 16·5 ft. below datum.

Intermediate I Phase (Pl. XVIII). Average level : – 13 ft.—Even less remains of the houses of the Intermediate I Phase than of those of the preceding period, and House III does not merit description. Nor did anything of interest survive in House IV, save an area of paving (19) which was drained to the west.[1] The northern portion of House I was fairly well preserved, and an ablution platform (12), in the S. E. corner of the house, 3 ft. 10 ins. by 2 ft. 8·5 ins. in size, and at the level 14 ft. below datum, was bordered in the usual way with bricks on edge. A little flight of steps, 3 ft. wide, with two treads, 5·75 ins. broad and 11 ins. high, led up to the platform from the north, and a second flight, rather narrower and with broader shallower steps, from the south. The scanty remains to the west may have been part of a separate building.

The design of House II was very much the same as in the previous period, except that the north-western corner of room 24 was partitioned off to make a little room (25), 8 ft. by 7 ft. in size. In three of the walls of this chamber there were niches, two of them 15 ins. deep and the third 10 ins., of practically the same width, 2 ft. 11 ins., and 3 ft. 8 ins. above the door-sill, which was the same width as the niches and 14·2 ft. below datum. There were three very similar niches in the northern wall of room 24. As these niches were all carried up to the top of the walls, they are shown in the plans of the Late Period (Pls. XIX ; XX), though it is uncertain whether they remained in use, especially as the westernmost one in room 24 was bricked up again, apparently soon after it was made.

Late III Phase (Pl. XIX). Average level : – 9·9 ft.—Of the houses of this period even less remained. Only House II was at all well-preserved ; and it was exactly similar in plan to the house of the Intermediate I Phase, affording strong support to the growing evidence that the Intermediate I and Late III Phases were in practically unbroken continuity. Indeed, the only distinction between the occupations was that after a lapse of time the accumulations of débris compelled the people of Mohenjo-daro to raise their floors and heighten the walls of their houses. The period of transition from the one so-called occupation to the next was not, as at some other times in the city's history, occasioned by a flood ; it probably spread over some years, according as people hastened or lagged over the adaptation of their houses to the changing levels.

Late II and I (b and a) Phases (Pl. XX). Average levels : – 7 ft., – 5 ft. and – 3·2 to +0·86 ft.—But little remained of the houses of these phases owing to the denudation caused by water running down into the ravine to the south. Of House III, only the northern and part of the western wall survived. The presence of two pottery kilns in the northern part of the block suggests that towards the latter end of the Late Period there were no houses on this portion of the site. These two kilns were very roughly built. Of the southern one which was slightly elliptical in shape, little more remained than its foundations. The floor had entirely disappeared, but there were indications that it lay 1 ft. 7 ins. below the top of the kiln.[2] The second kiln was also elliptical, and in much better condition (Pl. L, b). It measured 6 ft. by 4 ft. 9 ins. inside,[3] and what little remained of the wall which was only half a brick thick was 8 ins. high. Around the edge of its floor at the level — 5·7 ft., there were a number of flue-holes with an average diameter of 3·75 ins. The construction of these kilns will be discussed later.

[1] 12·2 ft. below datum.

[2] 6·7 ft. below datum.

[3] It is doubtful whether this elliptical shape was intentional. It was probably produced by earth-pressure as the walls are very thin.

The two long, almost parallel walls to the east of the kilns were probably of the Late II Phase, their foundations being 9 ft. and 7·4 ft. below datum respectively. There seems to have been a little cooking-place (Pl. XLVIII, e) against the eastern face of the western wall, that was probably of the Late Ib Phase as it was only 5·4 ft. below datum. A large quantity of wood-ash was found in its vicinity.

The walls of House II were once more raised and the plan of the house remained the same, though the door-sills were apparently earth only, for the latest brick door-sill was unearthed at the Intermediate I level. The western doorway into room 24 remained partially bricked up to make a niche, as it had been in the Late III Phase.

The previously existing niches in the walls of this house were carried up with the raising of the walls. The levels of the tops of some of the walls are given to indicate the surface undulations of this part of the mound: N. E. corner of room 24, House II, – 9·2 ft.; N. W. corner of room 23, House II, – 5·6 ft.; N. W. corner of room 10, House I, – 14 ft.; N. E. corner of House I, – 8·4 ft.

Block 3 (*Pls. XVI–XXI; XXXVII, a, f; XLVII, b; LI, d*).

Intermediate III Phase (*Pl. XVI*). *Average level: – 20·4 ft.*—There is very little left to show us the nature of this block of buildings as it was in the Intermediate III Phase; but this is not surprising considering its close proximity to the very wide thoroughfare (First Street) on the east and possibly another nearly as wide on the south. Only one house and a portion of another now remain, and these owe their comparative immunity from damage to the thickness of their walls and their position. All the chambers of House VI have been excavated to the average level of 20·6 ft. below datum without finding any traces of pavements, and it is more than probable that if the latter were of burnt brick they were removed to serve a similar purpose elsewhere.

Intermediate II Phase (*Pl. XVII*). *Average level: – 15·9 ft.*—The houses of this phase are fairly well preserved. House I alone was entered from the south and by a short passage. Another and perhaps earlier door of the very usual width 3 ft. 4 ins. in the southern wall of room 3 was found to have been bricked up. In room 16 a well-preserved pavement[1] was separated off by a narrow partition wall, whose remains stood some 6 ins. high.

The smaller House II was entered from First Street by a doorway, 3 ft. 6 ins. wide, whose sill was 15·5 ft. below datum. The paved room into which this door opened was 16 ft. 10 ins. long by 13 ft. 8 ins. wide. Its well-laid floor that was protected by a wainscot on three sides was 6 ins. below the level of the door-sill. The water used to wash this pavement down ran out through an aperture at the base of the northern jamb of the doorway into a soakpit in First Street, 4 ft. 6 ins. long by 2 ft. wide, with its floor 20·5 ft. below datum. The small room 24 was also paved.[2]

House III also was entered from First Street, but its main entrance was from the rectangular court at the back of Houses III, IV and VI. Both entrances into House IV had been obscured by the repairs and alterations made in the Intermediate I Phase.

[1] 16·3 ft. below datum.

[2] At the level 16 ft. below datum.

In room 45 of this house was a large open-mouthed jar which contained some deer horns and a seal. This jar was just beneath a very broken pavement 16·2 ft. below datum.

The First Street frontage of House VI was similarly altered and knocked about when the walls were raised in the Intermediate I Phase, but two doorways from the court at the back were traceable. This large court seems at this period to have been common to all the three houses that it backs. It was entered from Crooked Lane on the north. It proved somewhat weary work clearing the court, for it had been filled in with mud-brick, apparently early in the Intermediate I Phase.

The whole interior of House V had apparently been gutted for brick before being filled up with mud-brick, for only one thin partition wall remained. Curiously enough, the roughness which would be expected on the inside of the outer walls wherever brick partitions had been removed could not be perceived except along the western end of the southern wall. Possibly the partition walls, as was so often the case, were not bonded into the house walls.

Intermediate I Phase (Pl. XVIII). Average level: –13 ft.—On comparing the plan of this block during the Intermediate I Phase with the plan of the previous phase, it will be seen at once that considerable alterations were made in the course of rebuilding. Houses I, II and V were even changed in size, rooms 7, 14, 19, and 20 being transferred from House I to House V, and part of the passage 17 being included in House II. That these changes represent sales of part of his property by an impoverished owner of House I appears to be the most likely explanation in the absence of other evidence.

The entrance to House I was now, it seems, through room 16 which served as a vestibule. This door was 4 ft. wide, but since its sill was 11·7 ft. below datum there is some doubt whether it should be attributed to the Intermediate I or to the Late III Phase. It is, therefore, included in the plans of both, as are also some of the doorways in the interior of the house. Here again we have an indication of the unbroken continuity of the Late III with the Intermediate I Phase. Another smaller doorway into a room to the west was some 6 ins. lower. Judging from the thinness of the wall in which it was situated and the fact that this wall was not bonded in at either end, we must suppose that this was an inside doorway and that the outer wall of the house beyond it had been destroyed, especially as the western wall of the house ran further south from this point. A niche, 3 ft. 7 ins. wide, in the eastern wall of room 5 had been made by bricking up the eastern side of a doorway of the Intermediate II Phase with a thin wall half a brick in thickness.

House II was converted into an oblong building, 60 ft. 8 ins. by 22 ft. 3 ins., of extremely regular shape, by the acquirement of the southern end of the passage 17, of the House I of the preceding phase. Its southern wall had been destroyed below floor level and no trace remained of the entrance doorway. The newly acquired room 17 was entered by a doorway, 4 ft. 1 in. wide, whose sill was 12·2 ft. below datum. Recesses in the northern walls of rooms 17 and 25 were some 3 ft. 1 in. wide by 1 ft. deep, with their floors respectively 8 ft. and 8 ins. below datum. Quite considerable expanses of paving, 13·1 ft. below datum, remained in room 33, 34 and the adjoining room 41. In both these rooms this flooring was made of bricks, 11·75×5·5×2·5 ins. in size, laid E. to W. on their longer edges. At the northern end of the large room 41, which was 16 ft. 9 ins. long by 15 ft. 2 ins. wide, there was a circular depression in the floor, 1 ft.

8 ins. in diameter and 10 ins. deep, like those in room 26 of House II, Block 2, in the preceding period. This depression was lined with wedge-shaped bricks placed slantwise. The doorway between these two rooms could not be traced, as the partition wall had been denuded down to 3 ins. above the level of the pavements. A space, some 5·5 ins. wide, between the northern wall of this house and the southern wall of the adjacent House III is of interest as it serves to indicate that the building of houses with a common party-wall was not encouraged. Indeed, the preference for a batter to all outside walls precluded the use of party-walls between house and house.

House III was very small. It was entered, as in earlier days, from the large court to the west. A simple brick platform, bordered with bricks set on edge, at the level 13 ft. below datum in the south-eastern corner of room 42 may have been a privy, even though it was lacking in privacy, as the room was entered from room 49 which appears to have been a bathroom.[1] This latter room was very carefully paved with bricks, 10×5·25×2·5 ins. in size, placed on their longer edges, and was wainscotted to a height of 4·5 ins. From this bathroom pavement which sloped to the S. E., the water flowed out through a small channel, 4·5 ins. wide, into room 42, but further detail has unfortunately been lost.

The owner of House IV at this period seems to have had a number of small possessions for which he liked to have proper places. He made an unusual number of cupboards or niches in the walls of rooms 37 and 38, averaging 2 ft. 1 in. wide by 1 ft. 2 ins. deep, with their floors 10·8 ft. below datum, *i.e.*, some 2 ft. 4 ins. above floor-level.

In the N. W. corner of the large room 45 he built a bin, 5 ft. 5 ins. by 3 ft. 10 ins. inside. Traces still remained of paving in this chamber at the level 12·1 ft. below datum, though the sills of the two doorways into room 44 were over a foot lower.

The two-roomed House VI was entered by a doorway, 3 ft. 4 ins. wide of the Intermediate II Phase, whose sill was raised to the level 14·2 ft. below datum. The sill-level of the door between rooms 40 and 47, however, was only 12 ft. below datum.

The level of the large court which was apparently shared by these three houses had been raised by means of a filling of mud-bricks set in mud-mortar.

House V, as before, did not communicate with this court, but was entered from Crooked Lane. It had evidently fallen on better times. Not only were rooms 7, 14, 19, and 20 added from House I, but a small entrance lobby was made in the N. E. corner of the courtyard, whose level also was raised by means of a filling of mud-brick.

Three inset niches (Pl. XXXVII, a) in the eastern wall of room 21 of this house measured from 10·5 ins. to 11·4 ins. wide by 1 ft. 2 ins. high and about 1 ft. 7 ins. deep. In the northern wall was a hatch, 9·75 ins. wide by 8·5 ins. high, at a rather lower level, *i.e.*, some 2 ft. above the floor. It seems unlikely that these niches and the hatch served to take the ends of roof beams; though possibly they held the beams of a loom. There was a portion of the original paving along the eastern side of rooms 21 and 22.[2]

1 A very usual arrangement at Mohenjo-daro.

2 At the level of 14·6 ft. below datum.

Late III Phase (Pl. XIX). Average level: – 9·9 ft.—In this sub-period the south-eastern corner of the block suffered very extensive damage, principally, I imagine, by water pouring down First Street in a time of heavy flood. We have, indeed, strong evidence in other parts of the DK Area and elsewhere in the city of flood damage at the end of the Late III Phase and the city appears to have been temporarily abandoned.

The walls of the Late III Phase were mostly those of the Intermediate I Phase repaired and raised sufficiently to compensate for the general rise in level by the accumulation of rubbish and wind-borne dust. The additions to the already existing walls were slightly thinner. Several alterations were made in House I at the time when it was raised. A staircase was built in the little passage between rooms 5 and 6 with its lowest step 11·6 ft. below datum. It seems that it was first intended to make a narrower staircase, but that it was eventually built wide enough to fill the whole passage. Of Houses II, III and IV practically nothing was left by the flood; and the little House VI was badly damaged. The long courtyard of these houses had apparently been built over as several partition walls had survived, resting on the mud-brick filling of earlier date as foundation.

The small vestibule (22) in the N. E. corner of the court of House V was paved at this period, its highest part at the level 10·8 ft. below datum, and sloping down some 5 ins. to the N. W. corner. This pavement overlay mud-brick filling laid down in the Intermediate II Phase. The sill of the 3 ft. 3 ins. wide doorway by which House IV was entered from First Street was 10·9 ft. below datum, and the doorway between rooms 40 and 47 was at the same level.

Late II and I (b and a) Phases (Pl. XX). Average levels: – 7 ft., – 5 ft. and – 3·2 to +0·8 ft.—Of the houses of these sub-periods also, but little survived the denudation due to this part of the mound steadily sloping away to south and east, with wide streets bounding the block on these two sides. Practically nothing is left but the foundations in the north-western corner of the block. The partition walls of the house or houses built over the long courtyard of earlier days were raised in the Late II Phase; and there is little doubt that throughout this block as elsewhere in the city the pressure of increased population led to still further sub-division of rooms.

The remains of a pavement along the western side of room 32 of House VI were 4 ft. below datum, *i.e.*, of Late Ib date; and a small pier, 2 ft. by 1 ft. 4 ins. in section, close to its eastern wall served to support the roof.

The courtyard of House V had evidently been built over to accommodate part of the increased population of the city at this time; the partition wall of this house could still be traced and the usual paved domestic office situated in its S. W. corner was according to its level, 8·1 ft. below datum, of the Late II Phase.

From its size it appears that 47 in House VI was never roofed and it may have been a courtyard. It measures nearly 20 ft. square. The S. E. corner had been partitioned off, and the sill of the small doorway leading into this reserved space (46) was 8·5 ft. below datum. This partition wall is probably of the Late II Phase rather than Late III, for in this part of the site the levels of the various periods are somewhat lower than in other parts owing to the wear and tear due to the houses being in close proximity to two wide and important streets.

The various cesspits of the Late Period in First Street outside this block (Pls. XLVII, b; LI, d) were preserved from denudation by being underground. They are described in Chapter III.

Block 4 (*Pls. XVI–XXI; XXII, 3, 6; XXX, a–d; XXXVIII, c*).

Intermediate III Phase (*Pl. XVI*). *Average level: – 20·4 ft.*—The rectangular block of rooms immediately to the east of the Palace (Block I) was probably an annexe of the latter, with which it seems to have been in communication through the eastern wing (III).

A vertical joint in the brick-work of the northern façade of Block 4 just west of room 5 is clear evidence that this probable annexe to the Palace was not built at the same time as the main building. The character of this series of rooms suggests that they were either storerooms or servants' quarters. But whatever may have been their purpose, the thickness of the walls and the carefulness of their construction strongly indicate that they were built for government use.

It will be noticed that the plans in Pls. XVI and XVII show that this building was in use during the Intermediate II Phase also with but little modification. Throughout both phases its northern and southern portions were entirely cut off from one another by a wall in which there is no trace of a doorway. The northern portion is subdivided into a series of double rooms of varying sizes; in the southern portion there are two single rooms and one double one. The levels of the door-sills throughout this block vary by no more than 6 ins., the highest being 20·5 ft. below datum. The doors average from 2 ft. 11 ins. to 3 ft. 5 ins. in width and there is a footing round many of the walls at the average level of – 20·3 ft. Two sizes of bricks were noted, 11·75×5·9×2·75 ins. and 12×5·9×2·75 ins.

In the north-eastern corner of room 79 there was a little bin, 2 ft. 7 ins. by 1 ft. 11 ins. by 13 ins. deep, and another of slightly larger size in the south-eastern corner. Close to the western jamb of the doorway we found that somewhat rare article, a door-socket, roughly scooped out of a piece of broken brick. The walls of this room stand 15 ft. high in places and show evidence of having been raised from the height of 4 ft. 7 ins. above the footing of the Intermediate III Phase.

Against the northern wall of room 13 there was a rough platform, 9 ft. 6 ins. long by an average of 2 ft. 3 ins. wide, hollow and filled with rubble over which it was paved with brick. This was possibly a sleeping place and perhaps used by more than one person.

A large storage jar in the north-western corner of room 16 unfortunately fell to pieces on removal. Immediately below it was another, with its rim just below the pavement which was of two courses of burnt brick.[1] Both jars were empty, and it is possible that the lower one was intended to hold valuables and that the upper one served as a blind.

The walls of this block stand in places over 22 ft. high and in many places show clearly where they have been raised; the lines of demarkation are slight projections or else ledges, which are due to the fact that the earlier masonry was buried in the ground when the new was built, so that the mason did not always align his lowest course correctly (see elevation in Pl. XXII, 6).

[1] This pavement was 20·5 ft. below datum.

It was refreshing to find a building at this early level in which we are not in doubt about a single doorway, for though the four walls that divide rooms 14, 15 and 16 from one another had been removed in some places down to sill-level (Pl. XXX, a and b), sufficient was left accurately to determine the positions of the doorways. It is unlikely that there were any doorways in the N.-S. partition wall, for there was obviously no need for them, and there are none in the analogous wall in the three smaller chambers (5, 8) in this block. Very similar sets of rooms to these are built for the use of house-servants in India to-day, the front room for use during the day and the one at the back for sleeping.

Fore Lane along the north of this building was 5 ft. wide at the Intermediate III level (Pl. XXXVIII, c). There is some uncertainty about the alignment of the foundations of the building seen on the left in this photograph (the S. E. corner Block 7) as it has only been cleared inside to Intermediate II level. Crooked Lane on the southern side of Block 4 was 4 ft. 3 ins. wide (Pl. XXX, c), but the walls on the opposite side rest on mud-brick filling, as is clearly seen in the photograph. There may have been no contemporary building opposite. To the east of this block is Low Lane, 4 ft. 10 ins. wide at the Intermediate III level; in the photograph of this lane (Pl. XXX, d), the eastern side of Block 4 is seen between the two men.

Intermediate II Phase (Pl. XVII). Average level : – 15·9 ft.—The arrangement of the rooms of Block 4 differs but little from that of the previous phase. The walls were merely repaired, buttressed, and carried higher where necessary, as is seen in the photographs of parts of this building (Pl. XXX, a and b). The entrance to room 13 was moved a few feet to the west, the old doorway being blocked up.[1] At this period a flight of steps, 4 ft. wide, was built in chamber 6, filling it up and blocking the former entrance to room 78. Ten treads of this stairway were still well preserved, each 10·75 ins. broad and 7·25 ins. high.[2]

The small room 78 which was put out of use by the building of the stairs was filled up with coarse débris to serve either as a landing for the stairway or, if the latter was carried straight on, as seems likely from the curious construction in room 7, 9, 10, to support the flooring of an upper storey. The T-shaped partition wall that was built in this latter room cut off a small cell (9) which was filled up with rubbish apparently to support a prolongation of the stairway. This "T" wall rested on a mud foundation 1 ft. 5 ins. above the footing of the Intermediate III Phase. It was built of bricks 11·75×5·8×2·75 ins. in size. In the S. W. corner of room 7 an offering table was found in pieces but complete.

A second flight of steps of the same width was built in passage 3 to the west of the building, each tread 8·75 ins. broad and 9·25 ins. high. At the foot of this stairway there was a small landing 6·5 ins. above the adjacent door-sill and 18·4 ft. below datum. The masonry supporting this stairway runs back 13 ft. and if the stairs ran back the whole of this distance it is estimated that they would have reached a height of about 13 ft. 9 ins. If we allow 1 ft. 6 ins. for the thickness of beams, matting, etc., for the ceiling, it is permissible to infer that the height of the lower rooms of this building was rather over 12 ft., a not inconsiderable height for rooms of a small size. At the northern end of passage 3

[1] The new door was 18·2 ft. below datum.

[2] The lowest step was 18·2 ft. below datum, whereas the sill of the 3 ft. 10 ins. doorway that gave access to this stairway from III of Block 1 was 17·1 ft. below datum.

there were two shallow holes in the wall, 7 ft. 1 in. above the level of the adjacent door-sill.[1] These holes, one of which had been somewhat damaged, were originally each 1 ft. 4 ins. high by 4 ins. wide. They seem to have taken two beams whose other ends must have been set in the masonry of the staircase. These beams would have been close against the eastern and western walls of the passage and probably served to support a floor which allowed of the use of the northern end of the passage below it as a store-room entered from the west.

Resting on the sill of the inner door of the double room 5, there was a little bin, 14·75×12·25 ins. by 10·25 ins. deep. Its purpose is very obscure; indeed, it partially blocked the doorway.

In this phase, the eastern section (III) of the Palace was divided nearly equally in halves by a massive wall running east to west, in which there was at first a doorway, 8 ft. wide, at the eastern end.[2] This door was, however, bricked up at the latter end of the sub-period, probably at the time when the annexe was enlarged by building an upper storey and at the same time separated into two properties, as shown by the building of the two staircases just described.

The additional rooms built above the northern part of the annexe may have been living-rooms; if so, it is possible that they may, together with the northern part of the eastern wing (III) as a courtyard, have been allotted as a residence to an official. The southern part of the annexe and of the eastern wing was possibly converted into a similar separate residence.

Intermediate I Phase (Pl. XVIII). Average level: – 13 ft.—At this period the ground-plan of this building was greatly simplified, but, unfortunately, few of the doorways remained. The only apparent entrances were two doors at the south. The doorway of room 79 was 3 ft. 9 ins. wide; that is, slightly wider than during the two previous phases. The masonry that blocked up the previous doorway formed its sill.[3] The entrance to room 13 was the same width but its sill was about a foot higher. The large room 11–16, 35 ft. long by 19 ft. wide, was not subdivided at this period; its walls bear no traces of the bonding-in of partition walls (Pl. XXX, a, b). But without doorways it is impossible to be sure of the use to which this building was now put.

Late III Phase (Pl. XIX). Average level: – 9·9 ft.—Several structural alterations were made in the block at this period. Unfortunately, some of the walls had disappeared, but in those that remained the doorways were fairly well preserved. The building was by now evidently used as a dwelling-house whose principal entrance was through the passage leading into chamber 6, 9; in fact, right over the staircase of the Intermediate II (and I ?) Phases which lay buried in the accumulated débris of several decades. It is possible that rooms 3 and 5 formed a separate house, for they seem to be entirely cut off from the other rooms, and by thick walls at that.

The pavement in room 79 was laid in several courses, in all 1 ft. thick, with its surface 9 ft. below datum. In the N. E. corner of this floor was a round pit, 2 ft. 3 ins. in diameter, made like a well of wedge-shaped bricks and with its top level with the pavement. As the floor of this pit was not paved, it may have been a soak-pit, or possibly it served as a stand for a very large water-bowl or pan.

[1] 18·5 ft. below datum.

[2] Its sill was 15·3 ft. below datum.

[3] 14 ft. below datum.

Late II and I (*b and a*) *Phases* (*Pl. XX*). *Average levels: − 7 ft., − 5 ft. and − 3·2 to + 0·8 ft.*—Room 3 is a long narrow chamber and slightly irregular in shape. Its original length seems to have been 25 ft. and it averages 3 ft. 8 ins. wide. At the northern end of its western wall a sill-less doorway was found, which in the Late Ib Phase was blocked up roughly with broken bricks. Chamber 5 measures 16 ft. 6 ins. long by 7 ft. 10 ins. wide and was entered from chamber 3 by a doorway a little over 4 ft. wide, whose sill is 7·6 ft. below datum. The door-jambs which are fairly well-preserved stood 4 ft. above the sill.

With the increase in population which there is ample evidence took place at this period, this block was still further subdivided. Even the short passage (6), 3 ft. 4 ins. wide, and the vestibule to which in the Late III Phase it gave access were separated by partition walls during the Late Ib Phase. And before this was done, the southern doorways into room 8 had been blocked up, and the door in its eastern wall was not only bricked up but had another wall built against it. Possibly room 8 was filled up to support a room, or rooms above, to which a stairway, 2 ft. wide, led up from room 15.[1] Of this stairway, six well-preserved treads remained, averaging 5 ins. in breadth and 5·25 ins. high, giving a total height of 2 ft. 7 ins. The original number of steps can be calculated from the mass of brickwork at the back of the remaining treads to have been fifteen. In the corner formed by this stairway and one of the jambs of the door of room 11 and the side of the staircase, a very large jar (Pl. LVIII, 9) was found at the level − 6·7 ft.

The sill of the doorway, 3 ft. 6 ins. wide, in the eastern wall of chamber 13, was 8·7 ft. below datum and the jambs still stood 3 ft. 2 ins. high. This doorway led into chamber 79, whose southern and eastern walls had almost entirely disappeared.

The owner of this house at this period made two niches in each of the northern and southern walls and one in the eastern wall of room 12 to take his possessions. These niches average 2 ft. 4 ins. wide by 1 ft. 3 ins. deep, and the floors of those in the northern wall were 6 ft. 3 ins. above the original paving of the room, which was shown by a footing along its northern side to have been 8·3 ft. below datum. The niches in the southern and eastern walls were 6 ins. lower.

Room 14 measured 16 ft. 2 ins. by 11 ft. 2 ins., and the eastern doorway, 3 ft. 6 ins. wide, with its sill 5·4 ft. below datum, led into a small room (16), which had been subdivided by a roughly built partition wall. The thin wall between rooms 14 and 15 was certainly of Late I date.

Block 5 (*Pls. XVI–XXI ; XXXVII, d ; XLVII, c*).

Intermediate III Phase (*Pl. XVI*). *Average level : − 20·4 ft.*—Of this block there is but little left of the Intermediate III Phase. It is noteworthy, however, that the Low Lane frontage of the middle house of the three comprised in the block is extraordinarily massive compared with the other frontages along that lane and even with the façade in First Street. Possibly this great thickness of masonry served to support a staircase as well as forming the outer wall of the house. There are no doorways into the small cells 6, 7, and filled with rubble they would have formed a solid foundation for a stairway of considerable height.

[1] The foot of this stairway was 5·8 ft. below datum.

House I was entered both from First Street by a doorway (23), 4 ft. wide, into a long passage and also from Low Lane.

Intermediate II Phase (Pl. XVII). Average level: – 15·9 ft.—The remains of the houses of this period were much better preserved, though only a few of the doorways in Houses I and III could be located.

The First Street entrance of House I was no longer used; it was found to have been blocked up. At the same time the western end of the passage was cut off by a cross-wall and included in room 2. The northern of the two rooms numbered 2 was filled up with unbaked bricks set in mud-mortar to the level – 12·9 ft., and it seems not improbable that in this corner of the house was a stairway leading to roof or upper storey, though none of its treads had survived.

At this period the house was entered from Low Lane only by a doorway, 3 ft. 4 ins. wide, in the S. W. corner. The inner door of the vestibule (1) was 7 ins. narrower. The door-sills of this house average 17·4 ft. below datum; the exception was a foot higher, presumably because the pavement of room 12 was raised above the general floor-level for proper drainage. In this room there was a carefully lined well, 2 ft. 2 ins. in internal diameter (Pl. XXXVII, d). The lower pavement seen in this photograph was 16·4 ft. below datum; it extended over the whole of the floor with the usual brick guard round the walls and also an edging of brick round the base of the coping of the well. The upper pavement was 2 ft. 4 ins. higher and was laid in the Intermediate I Phase. The coping of this well was in a very good state of preservation; and the usual wedge-shaped bricks, 11·5×3·75×2·25 ins., that composed it had bevelled outer edges. The coping stood 1 ft. above the upper pavement, whose bricks measured 9·6×4·9× 2·4 ins.[1] A very sloping water-chute in the thickness of the outer wall drained this well-room into First Street (Pl. XXIX, d).

The walls of House II had all been destroyed down to foundation level, but it is permissible to assume that the entrance was from First Street into room 15, as a doorway of Intermediate I date here was well preserved.

The narrow two-roomed House III with its noticeably thin walls may have been a shop. If so, it was remarkably well situated. It was entered from First Street by a doorway, 3 ft. 4 ins. wide, which had also been used in the Intermediate III Phase, and probably even before that, the sill being raised as the general level of the city rose. The pavement in the north-eastern corner of room 10 was 18·6 ft. below datum. It was edged all round in the usual manner and drained through an aperture in the wall into the street drain outside.

Intermediate I Phase (Pl. XVIII). Average level: – 13 ft.—The ground plan of this block was very little altered in the Intermediate I Phase, save that a few partition walls had disappeared. Indeed, throughout its history as we know it, the block comprised the three houses already described.

The entrance into House I was probably still in the south-western corner. The pavement in the southern part of the well-room was 14 ft. below datum; it is the upper pavement seen in Pl. XXXVII, d. The large room 2 was an average of 25 ft. long by 10 ft. 6 ins. wide; and, rather curiously, neither its eastern nor western walls was bonded into the other walls.

[1] Those of the lower pavement were larger, measuring 10·4×5·4×? ins. In the walls the bricks were 11·5×5·75×2·5 ins. in size.

House II was entered from First Street by a doorway, 3 ft. 3 ins. wide, with its sill 12·5 ft. below datum, which may have been the successor of a doorway in the same position during the previous phase.

House III remained much the same as in the two previous phases, and as before was entered from First Street by a small doorway, 3 ft. 3 ins. wide, whose sill was 14·7 ft. below datum.

Late III Phase (*Pl. XIX*). *Average level : – 9·9 ft.*—In this phase, House II seems to have been enlarged at the expense of House I by the inclusion of room 5. The well in the latter house was not raised to bring it into use again, and it may be that the owner of the house had fallen on evil days or that someone had been drowned.

When the flood occurred which seems to have caused the temporary evacuation of the city at the end of this phase, this block in common with Block 3 suffered considerably from the torrent which appears to have swept down First Street into the cross-road to the south.

Late II and I Phases (*Pl. XX*). *Average levels : – 7 ft., – 5 ft., and – 3·2 to +0·8 ft.*—Unfortunately, owing to denudation very little is left of the Late II and I buildings in this block, save House III and the western wall of Houses I and II.

Block 6 (*Pls. XVI–XXI ; XLIV, d ; XLVII, c, d ; LI, c*).

The interior of Block 6 has only been cleared down to the floor-level of the Late III Phase and, therefore, only the outer walls of the three houses appear in the plans of the Intermediate Phases. In the Intermediate III Phase (Pl. XVI), House I was entered from Low Lane by a doorway in its S. W. corner. Other entrances to this house and to House II which must have been in use in the Early Period were bricked up during this sub-period.

It will be seen from Pl. XVII, however, that in the Intermediate II Phase, House I of this block had six entrances. The sill of the chief doorway in the middle of its southern wall was 4 ft. wide and 16·7 ft. below datum. In the subsequent Intermediate I Phase, this doorway was bricked up.

Late III Phase (*Pl. XIX*). *Average level : – 9·9 ft.*—The outer walls of the houses of this phase had mostly been destroyed below the level of the door-sills. House I, however, we know was entered from First Street by a doorway, 5 ft. wide, close to its N. E. corner. This house, moreover, was in communication with House II by a door, 2 ft. 10 ins. wide, at the western end of its northern wall ; and it seems probable that it had been bought by the occupant of House II who used it as an annexe to his own property. There can be no doubt that the two houses were originally separate properties, since the former was quite a separate building; whereas House II shares a party-wall with House III. In room 2 there was a small stretch of burnt brick paving 10·4 ft. below datum, which definitely belongs to the Late III Phase.

The apparently open court 3 was somewhat irregular in shape and averaged 24 ft. 6 ins., N.-S., by 23 ft. 6 ins., E.-W. To the north of the well in its centre was a small apartment paved at the level 9·5 ft. below datum with burnt bricks, 10·75×5·25×2·25 ins. in size, laid on edge. This pavement, which measured 8 ft. by 4 ft. 9 ins., had a border of brick along its sides. To the south of the well there are the remains of earlier walling, in the middle of which a drain, 6·5 ins. wide by 8 ins. deep, slopes obliquely southwards. This drain

runs through an aperture, 6·75 ins. wide by 9·5 ins. high, into a drain in the lane outside.[1]

It is possible that during this, and perhaps the previous periods, the well[2] was a public one and rooms 1 and 2 the residence of its guardian. If this were so, it was perhaps withdrawn from public use at the time when this house was taken over by the occupier of House II, unless the doorways between the two houses were made for the convenience of easier access to the well and the guardian of the latter was a servant or dependant in the household of House II. This latter house had a wide doorway from Low Lane which seems originally to have been as much as 7 ft. 9 ins. wide. It was, however, first made narrower by means of blocks of masonry on either side and then finally bricked up altogether. No door-sills had survived, but the foundations of the jambs were all about the level − 11·2 ft. which dates them to the Late III Phase.

Chamber 11 was entered from room 9 by a doorway, 4 ft. wide, whose jambs stood over 5 ft. high.[3] A considerable area of paving[4] remained at its southern end, upon which some later walling—probably dating from Late II days—stood only a few inches high. The remnant of a partition wall that projects from the southern side of the chamber was, however, of the same date as the pavement, for it was carefully wainscotted with bricks laid on their longer edges and projecting 2·5 ins. above the pavement. There were other fragments of paving in room 8, 9 at slightly different levels, that in the north-western corner being 12 ft. below datum. Some curious, thin, detached walls in room 7, which when cleared stood only a few inches high, may possibly have served to keep domestic or pack animals apart; for it should be noted that not only was the entrance to this house of unusual width and 6 possibly an open court, but the doorway into room 7 was well-nigh twice the usual size. A bricked-up niche in the northern wall of this possible stable was 3 ft. 9 ins. wide by 2 ft. 4 ins. deep and may possibly date from the Intermediate I Phase.[5]

The stairway to the upper storey was built against the southern wall of room 10, and was 2 ft. 4 ins. wide with three treads, each 6 ins. broad and 9 ins. high.

House III was quite a large building which was entered from First Street by a doorway into a vestibule or courtyard (29), from which three doorways led into three suites of rooms. Each of these suites was apparently a self-contained residence, for from each a drain ran out through the eastern wall of Low Lane to empty itself into the unusually well-built drain that skirted the western wall of that thoroughfare. A photograph of this portion of Low Lane, which averages 6 ft. 10 ins. in width at the level of the drain, is seen in Pl. XLIV, d. This drain averaged 9 ins. in width by 1 ft. 2 ins. deep, with a slope towards the north of only 2·5 ins. in a length of 89 ft.[6]

The space marked 24 and 29 was probably a courtyard, perhaps in common use by members of the three families that occupied this building and were perhaps closely interrelated. At some time the western portion of 15, 16, 19 was

[1] The floor of its channel averaged 11·5 ft. below datum.

[2] 2 ft. internal diameter.

[3] The door-sill was 10·4 ft. below datum.

[4] 11 ft. below datum.

[5] Its sill was 11·2 ft. below datum.

[6] At its southern end the floor of this drain is 13·7 ft. below datum.

partitioned off and roofed over with the help of the little square pier (15) which measured nearly 2 ft. 6 ins. square.

A fragment of pavement against the eastern wall of room 27 may be the remains of an ablution platform, or from its position more probably a privy.[1]

It seems unlikely that there was an upper storey to this building, for its outer walls are unusually thin and no trace of a stairway remains in any part of it.

There appears to have been some disagreement over the party-wall that this house at first shared with the important building (6-A) immediately north of it, and the owners of House III were apparently compelled by the authorities to build their own northern wall between the two houses—and a very poor, thin affair, it was, a little over 18 ins. thick.[2]

Late II and I (b and a) Phases (Pl. XX). Average levels: – 7 ft., – 5 ft., and – 3·2 to +0·8 ft.—The narrow lane (Pl. XLVII, c) between Blocks 5 and 6 averaged 5 ft. in width at this level—rather wider than at the lower levels owing to the batter of the house walls. In it a drain with its bed an average of 10·5 ft. below datum must have been laid in the Late II Phase, as it was, of course, underground when functioning. This drain which drops 3 ins. in a length of 25 ft. emptied into a drain in First Street. It was covered with a single course of bricks laid flatwise across its channel, which was 7 ins. wide and 8 ins. deep with sides half a brick thick.

The steening of the well in House I was composed of both wedge-shaped bricks 9·5 ins. long by 3·5 ins. wide by 2·25 ins. thick, and rectangular bricks, 10·5×5·5×2·5 ins. in size. The coping reached the level – 8·9 ft., but it had probably been considerably higher and had been weathered down to its present height. The arrangement of the house appeared to have been the same as in the previous period; practically no alterations were made in it.

House II remained very much the same inside, though it was now entered from First Street instead of from Low Lane. The latter entrance being now completely blocked up, it seems likely that no longer were domestic animals kept in the suggested stable (7) just north of the little courtyard 6, perhaps an indication of the dwindling fortunes of the owners of the house. At first there was a narrow entrance to the house in its N. E. corner, but it was very soon blocked up, except for a small aperture communicating with a soak-pit in First Street just outside the paved room 11. A new doorway, 6 ft. wide, was made in the middle of the First Street frontage.[3]

The interior of House III remained as before arranged for the accommodation of more than one family. But whereas in the Late III Phase there was a single doorway opening into the common courtyard and the families were probably all closely related, at this period, there were a number of entrances from First Street,[4] and these seem to have been days of reduced prosperity. The courtyard was partitioned to make three small rooms, two of which, with parts of 17 and 28, were cut off and converted into little lock-up shops. Indeed, there is ample evidence that this part of First Street was at this period used as a bazaar.

[1] Its top was 10·3 ft. below datum.

[2] In comparison with the usual thick walls of Mohenjo-daro.

[3] The sills of both these doorways were some 8·1 ft. below datum.

[4] The sill of the lowest was 7·7 ft. and of the highest 7 ft. below datum.

The former entrance into the vestibule or court 29 was blocked up in the Late II Phase and turned into a niche whose floor was 7 ft. below datum. The new eastern wall slightly overlaps the Late III wall at the level – 8·5 ft.

In room 20 there are several points of interest to note. First, there was a 3 ft. wide stairway in its south-eastern corner, whose three treads averaged 6 ins. broad and 6·5 ins. high. The lowest tread was 8·1 ft. below datum , *i.e.*, this stairway was built in the Late II Phase. It is possible to estimate its original height from its measurement N.-S. which is 9 ft., excluding the thickness of the wall against which it was built. The total height would have been a little over 9 ft. This stairway probably led to a roof only, for the thinness of the outer walls of this building makes it unlikely that they could have carried an upper storey.

In the S. W. corner of the room there was a square patch of paving at the level – 7 ft., and in the middle of the western wall a partially blocked-up doorway, 3 ft. 6 ins. wide, whose well preserved sill was 8·5 ft. below datum. This doorway dates from the Late II Phase, and was probably only blocked up in the Late Ib Phase.

For some reason the northern end of Low Lane was closed just opposite room 22 of House III by a wall which when cleared stood some 2 ft. high. Its foundations were at the level 9·1 ft. below datum.[1]

Block 6A (*Pls. XIX ; XX ; XXI ; XLV, e ; XLVI, a*).

Late III Phase (*Pl. XIX*). *Average level : – 9·9 ft.*—Situated as it is at the junction of two very important streets, the remarkably thick-walled building 6A must itself have been of exceptional importance. The most massive of its walls, which is 4 ft. 5 ins. thick, skirts the southern side of Central Street and all four outside walls have the usual batter. At this level, the lowest to which this block has been cleared, there were two doorways on the western side : one near the middle, 2 ft. 5·5 ins. wide, and another smaller doorway close to the north-western corner, which in the Late III Phase did not give access to the main building. This latter door will be mentioned again later.

The general plan of the building was quite simple ; there were two large apartments to the east separated by a thick partition wall which was probably built upon one of earlier date, and three rooms to the west. Both the large rooms seem to have been partially, if not entirely, roofed over, for in the middle of each there was a pier obviously intended to support roof-beams. These piers are T-shaped, the leg of the " T " being to the west in both cases. The buttresses shown in Pl. XIX, two against each of the northern, eastern and southern walls, have no connection with the building as it stood in the Late III Phase ; they appeared just above the sub-pavement level to which the block was cleared and were obviously of Intermediate I date.

At this period, a staircase, 3 ft. 6 ins. wide, with treads 9 ins. broad and high, was built against the northern face of the partition wall and undoubtedly led to an upper storey. The lowest step of this stairway was 9·7 ft. below datum and its foundations were 2 ft. lower. These stairs probably reached a height of over 12 ft., but we cannot be quite certain of our estimate as the staircase was rebuilt in a very makeshift manner either in the Late II or Late Ib Phase. The original steps were of excellent masonry and the four treads that remain of the earlier structure are still in a good state of preservation.

[1] By a mistake this appears in Pl. XIX.

The three rooms on the west (31–34) may have been offices. They are no mere additions ; the thickness of their walls shows them to be part of the original design of the building. The little room (35) in the north-western corner of the building, with its doorway only 2 ft. 1 in. wide,[1] was carefully paved in the Late III Phase, and it was drained by means of a small channel into the street drain in Low Lane. It is difficult to divine what was the purpose of this little room, measuring rather under 5 ft. 6 ins. square, which did not communicate with the rest of the building. It is possible that it served, at least in the Late III and II Phases, as a watchman's quarters. It certainly occupies a strategic position and nobody could pass without being seen.

This curious building was well drained towards the east where several sediment-pits and drains in First Street received waste water. Against this wall brick benches had been built in the street—perhaps for public letter-writers, if, indeed, this was an administrative building as seems likely (Pl. XLVI, a).

Late II and I (b and a) Phases (Pl. XX). Average levels: – 7 ft., – 5 ft., and – 3·2 to + 0·8 ft.—During the Late II Phase, this building seems to have been paved almost throughout ; large stretches still remained in a fairly good state of preservation at the average level – 8·4 ft. Judging from the care with which the paving was laid and the fact that it was edged all round, we must conclude that the floors were frequently washed down, perhaps not so much to keep them clean as to cool the building during the hot weather. The pavements were laid on a foundation some 3 ft. 6 ins. thick, of small nodules of burnt clay, evidently the refuse of a brick kiln. The same thing has been noticed in other parts of Mohenjo-daro, but nowhere is the filling anything like as thick as in this building.[2]

The drainage of the paved floors seems to have been confined to a single large curved channel from room 41. In the wall a little south of this drain there is a fine water-chute, 1 ft. 6 ins. wide, whose sloping bed is made of bricks set on end in rows of three at about 40° to the vertical with the flats outwards (Pl. XLVI, a). The corresponding chute of the Late III Phase is seen blocked up beneath it. There is a smaller vertical chute a little further along the same wall to the south.

The T-shaped piers were added to somewhat irregularly, and at the same time another pier was built up against the N. E. corner of the southern one. Possibly, with the decline of the city the long roof-beams which were used in the Late III Phase were no longer obtainable and the original piers had, in consequence, to be enlarged and an additional one built to support beams of shorter length. In Pl. XLV, e, an addition to the eastern end of the northern pier is seen.

The party-wall between the two large rooms was raised in the Late II period, when its southern face was patched and repaired whereas the northern face is well preserved.

In the Late Ib Phase a doorway, 2 ft. 9 ins. wide, was cut in the southern wall of room 35 with its sill 5·4 ft. below datum.

Owing to the position of this building in the angle of two wide streets and the resulting damage by denudation, little remains of the masonry of the Late I Phase. Those walls that still existed followed the alignment of the thicker earlier walls, and as far as can be determined the building was not eventually used as an ordinary residence, as seems to have been the fate of most of the larger buildings.

[1] Its sill was 10·2 ft. below datum.

[2] *Mohenjo-daro and the Indus Civilization*, p. 239.

It seems to have served one purpose throughout whatever that may have been, possibly in the Intermediate I Phase also, for the foundations of the main walls have not yet been reached.

Block 7 (*Pls. XV, a–c; XVI–XXI; XXII, 7; XXIX, b; XXX, d; XXXIV, b; XXXVI, b, e; XXXVII, b, e, g; XXXVIII, a, c, d; XXXIX, e, f; XLVIII, a; LI, b*).

As will be noticed in the plans, this block was throughout the Intermediate and the first phase of the Late Period (*i.e.*, the Late III Phase) bounded on three sides by streets and lanes ; but after that time part of Long Lane was encroached upon and built over (Pl. XX). For want of a definite boundary, the western limit of this block has been arbitrarily fixed as a straight line immediately east of Houses I and II of Block 10. It was hoped at first that the lane which in the Late II and I Phases skirted the western side of House I of Block 7 would prove to exist in the lower strata, but, unfortunately, the earlier walls had been wrecked and in some cases entirely removed by brick-robbers.

Intermediate III Phase (*Pl. XVI*). *Average level: – 20·4 ft.*—The important building (B) in the south-western corner of the block, to which we have already referred in the description of the deep digging done in this vicinity, was heightened and re-used in this period, though little remains to attest the fact. The badly damaged walls still stand a very considerable height (Pl. XV, a–c), and the building was undoubtedly again re-used in the Intermediate II Phase and possibly even later. In the Intermediate III Phase the doorway, 3 ft. 5 ins. wide, of the Early Period was filled in by a flight of three steps, for which the original sill[1] served as the lowest tread, the uppermost tread being 21·8 ft. below datum ;[2] and at this level there was a pavement of burnt bricks, 11·65×5·65×2·9 ins. in size. As there was a considerable vertical distance between this pavement and the foundations of the building, we removed a great deal of the former to be able to clear the room below which turned out to be 8 ft. wide, N.-S. Its length, however, could not be determined owing to the destruction of the eastern end of the building. The walls of this chamber are curiously rough and there is some doubt whether it had ever been in use as a dwelling-room, especially as no direct communication was found between it and the doorway of the Early Period mentioned above. It was, however, entirely filled in with burnt bricks, instead of the sun-dried bricks invariably used for fillings in other parts of the site. For all that, there must have been a properly built room here at some time, otherwise the door would have had no purpose. We can only conclude that the room was entirely filled in to make a high platform of solid masonry when the walls of the building were raised.

The building to the north-east of B (near VIII) appears to have been one of considerable importance, but it was so ruined that no features of interest survived except the well in room 19 which is one of the best preserved in the DK Area. The top of its often raised steening (Pl. XXXVII, g) is at the level – 4·8 ft., and it has been cleared to a depth of 19 ft. 4 ins. below that level. The entrance to the well-room in the Intermediate III Phase could not be located, though one must obviously have existed. A possible doorway has been indicated in the

[1] At the level 24·2 ft. below datum.

[2] The heights of these treads from the bottom are :—1 ft. 3 ins., 9·5 ins. and 3 ins. ; their widths were 10·5 ins., 10·5 ins. and 9 ins.

plan, but its position was only conjecturally estimated from a somewhat problematical jamb in the much damaged wall. Its sill would probably have been 20·5 ft. below datum.

The little two-roomed building VII seems to have been self-contained. Situated as it was facing buildings of large size and obvious importance, it might perhaps be regarded as having been occupied by a minor official, whose presence near to the Palace was essential.

House VI, which as it now stands is mostly of Intermediate II date (Pl. XVII), is partially supported on what appear to be square columns at the corners and along three of the free sides. The spaces between these columns are filled in with brick work of several patterns ; for instance, flats alternating with courses of upright headers, and in other places, upright headers alternating with ordinary headers. Without taking down the house above, it is impossible to examine in detail what seem to be most unusual foundations. The piers may be of Intermediate II date and deliberately used instead of continuous foundations, or the house may have been built on the ruins of an arcaded building of earlier days. Whatever the date of the piers, however, the spaces between them were definitely filled in during the Intermediate II Phase and the work was done when the piers were mostly underground. The general effect is very patchy and irregular, and there are even slices of bricks set in here and there, which strongly suggests under-pinning at a subsequent date. The mason employed upon it had to work in a very confined space and was probably afraid of the wall above collapsing on him. Photographs of the south wall of this building are seen in Pl. XXXVIII, a and c, and it will be noticed that buttresses, which must not be confused with the columns mentioned, were also used to support the foundations of the house which undoubtedly threatened at some time to subside, perhaps owing to a flood. The large jar seen in Pl. XXXVIII, a, may have been used for drainage or, possibly, it was left behind by the mason who used it in his work. The well (75) must have been in use at this period, though we have not cleared inside the house as far down as the Intermediate III level.

Pl. XXXVII, e, is a view of the courtyard (78, 80) of an important house (V) with two entrances from Low Lane.[1] House V was also entered from a lane along its southern façade by a short passage with a well-room (68, 77) on one side and on the other two rooms (54 and 63) which had survived the brick robbing at that time and measured in all 20 ft. 9 ins. by 9 ft. 4 ins. The sill of the entrance to the western room (54) is 20·8 ft. below datum, whereas the sills of the eastern entrances were 18·9 ft. below datum. As the western entrance was found blocked up, it seems that at first room 63 was only entered from room 54, but later room 54 was only entered by way of room 63. The N. W. corner of the house had been completely destroyed. Inside the western doorway of room 50 of House IV was a large pottery jar fed by a little runnel (Pl. XXXVII, b) made of a partially scooped-out brick, that seems never to have been covered in. As this vessel was inside the room and the liquid arrived from outside—a most unusual arrangement—we must suppose that here we have the remains of some apparatus for brewing or, perhaps, the preparation of oil. The jar was not holed as a drainage jar would have been, and it was well made and coated on the outside with a thick red slip which would prevent percolation.

[1] Level of door-sills 21·1 ft. below datum.

The well-room (77, 81), 16 ft. long by 8 ft. wide, was entered from the north and south by two wide doorways whose sills average 19·5 ft. below datum. To the east of the well was a carefully laid pavement at the same level as the door-sills, but it had sunk badly in the centre. Shallow cavities in this pavement worn by the dumping of numberless water-jars show that this well-room was in frequent use throughout a lengthy period, and its separate entrance from the lane to the south suggests that the owner of the house freely allowed his neighbours access to his well. The spilt water drained away into Low Lane through a rectangular aperture in the eastern wall.

The badly ruined house (IV) which was entered from Long Lane was less substantially built. It appears to be of slightly earlier date than Houses V and VII, as the door-sills were some 21·7 ft. below datum. The little patch of paving (79) at the level – 18 ft. is all that remains of either a bathing-place or a privy which, as so often at the present day, was built at a slightly higher level than the rest of the house to allow of proper drainage. Of the small house (III) to the west of it practically nothing remained.

Intermediate II Phase (Pl. XVII). Average level: – 15·9 ft.—The remains of the buildings of Intermediate II date were better preserved than those of the previous phase.

A few fragmentary walls here and there enabled us to reconstruct some sort of plan of Building I which possibly formed part of the building at the eastern end of Block 10, with which it was aligned.

Buildings II, IX, and the accessory buildings to the south of them, including the well-room 19, seem at this period to have formed one large complex, of which IX may have been a series of storerooms, possibly added to House II at a slightly later date. We have very good grounds for our reconstruction of the interior of IX in that, when the missing walls were removed by brick-robbers, traces of their former presence were left on the inner faces of the northern and western walls into which they had been bonded. The exact position of the doorways, however, and the levels of their sills remain uncertain, though some help towards the determination of the latter is afforded by the little patch of pavement in passage 37 (IX), which lay 15·5 ft. below datum.

Between Building (IX) and House II of Block 10, in the space marked 28 on the plan, was a staircase (Pl. XXXIV, b) rising from the north where it was 4 ft. 8 ins. wide to 5 ft. 3 ins. wide at the south owing to the diverging of the walls. Six treads remained, each 9 ins. broad and 7 ins. high, the lowest at the level – 17·3 ft. The channel of the drain beneath this staircase was 8 ins. wide by 13 ins. deep, its bed at this point being 19·1 ft. below datum. In the western wall of this staircase just above the second step, a small niche, 5 ins. square and 4 ins. deep, evidently held a lamp to light the lower steps (Pl. XXII, 7).

The photograph of the well-chamber 19 in Pl. XXXVII, g, shows an apparent pavement with an undulating surface. This is in reality the foundations of a pavement whose true surface was only preserved in the south-western corner of the room at the level 17·2 ft. below datum, which corresponds with the sill of the doorway in the northern wall. Whether there was another doorway in the southern wall of the room it is impossible to say, owing to the destruction of this wall right down to the foundations of the Intermediate III Phase. A doorway in the western wall of room 19 is of the same width as the northern door of the well-room, but its sill is 10 ins. higher.

House II itself was a remarkably well-constructed building at this period, measuring 39 ft., E.-W. by 33 ft. 4 ins., N.-S. Its outer walls were 4 ft. thick. None of the doorways of this building could be traced ; they were probably very carefully blocked up and bonded in to the new masonry of the Intermediate I Phase.

I am inclined to think that the more or less self-contained buildings III, IV, and V at this time formed a single complex about a common courtyard, inhabited by more than one family, probably branches of the original parent stock. In the eastern and southern portions of this complex of buildings, which are the best preserved, a number of doorways still remain whose sills average 16·8 ft. below datum. The two entrances from Low Lane, one of which we left blocked up as we found it, were originally of Intermediate III date : their sills had been raised as required by the rising of the levels (Pl. XXXVII, e).

The two doorways between rooms 40 and 41, 41 and 46 are each 3 ft. 4 ins. wide with their sills an average of 15·4 ft. below datum, and the narrow strip of pavement in room 46 is 1 ft. 4 ins. below the level of the adjoining door-sill.

The patch of pavement in the south-eastern corner of room 72[1] was edged on the free sides, and seems likely to have been a cooking platform rather than one used for ablutions, for it had no privacy in a room 19 by 16 ft. in size with four doorways from other rooms. Another and larger area of pavement in the adjacent room 79 (Pl. XXIX, b), made of bricks 10·75×5·5×2·3 ins. in size, was carefully laid in no less than three courses on a bed of 1·75 ins. of clay, which rested on layers of gravel and rubble respectively beneath. The blocked-up doorway in this photograph is of Intermediate I date.

Though the well-room 68, 81 was probably paved at this period, no trace whatever remains of its flooring, which may have been removed to be re-used at a higher level. The traces of a pavement of Intermediate III date have already been mentioned.

Nos. VI and VII were possibly also parts of one house at this period, but few of the doorways remain to guide us as to their arrangement. The entrance from Fore Lane into room 56 is the very usual 3 ft. 4 ins. wide, with its sill 15·3 ft. below datum, whereas the earlier sill was 3 ft. 6 ins. lower. The wall at the back of rooms 56, 57 and 80 is seen in Pl. XXXVII, c, and dates from this period only, as also the little flight of steps into room 59, whose lowest tread is 15·5 ft. below datum. This little room being at a somewhat higher level was probably the privy, as in the previous phase.

The curious foundations and underpinning of the remarkably thick-walled S. E. corner of this house have already been described, and the upper structure of this phase is very obscure owing to the numerous alterations that were made in its interior at various times. Further excavation will be necessary to settle many details. The well in chamber 74, 75, whose internal diameter is 2 ft. 6 ins. reaches to a level of 8·3 ft. below datum. A few surviving fragments at the level – 15·1 ft. show that the well-room was paved in the Intermediate II Phase, and there is reason to think that it was entered at the eastern end of the southern side. It would only be possible to determine this point by removing part of the somewhat unstable walls before digging deeper.

[1] 16 ft. below datum.

In only one of the lanes that surround this block on three sides were traces found of a drainage system of Intermediate II date. This drain ran westward from Low Lane along Long Lane making four right-angled bends with the wandering of the lane. Its channel which varies very considerably in width and depth owing to denudation averages 10 ins. wide by 1 ft. deep ; its bed which at the eastern end is 16·1 ft. below datum falls 3 ft. by the time it reaches the western end of House III, Block 10. This drain in the stretch of Long Lane between Block 7 and House III, Block 9, is seen in Pl. XXXIX, f.

Intermediate I Phase (*Pl. XVIII*). *Average level: – 13 ft.*—With the exception of a few isolated fragments of walling, nothing of Building I of this phase remained. House II had again been destroyed down to its foundations which rested on earlier masonry of the Intermediate II Phase, and no doorways could be located. The arrangement of the rooms was practically unaltered. The southern wall of the annexe IX was well preserved; indeed the restoration of this building in the Intermediate II plan follows this alignment, for it seems likely that the lower part of the foundations of this wall which reaches down to the level 16·7 ft. below datum was really of that date. The doorway in this wall which stood an average of 3 ft. high was 3 ft. 4 ins. wide, but the bricks of the sill had disappeared.

No trace of any paving of this period was found in the well-room 19 ; it may have been torn up and re-used at a later date. The doorway in the northern wall was 2 ft. 8 ins. wide and was found blocked up. Its sill was only 11·4 ft. below datum, which is rather high for the Intermediate I Phase. At the northern entrance to room 19 were two stairways, of which the eastern and larger one was 6 ft. 3 ins. wide with treads averaging 10 ins. broad by 12 ins. high. The treads of the other stairway were very much the same size and the lowest step in each case 14·9 ft. below datum. Only the smaller stairway had any connection with the well-room ; the larger one was entirely cut off from it and may have led to an upper storey.

Very little is left of House III, of which the attempted restoration in the plan is based on the few fragmentary walls that remain.

House IV which was fairly complete was again self-contained and followed very much the same plan as in the previous period. Though the sills of a row of three niches, 2 ft. 9 ins. wide by 1 ft. 2 ins. deep, in the northern wall of the large room 72 were an average of 13·9 ft. below datum, it is uncertain whether they should appear in the Intermediate I plan or that of the Intermediate II Phase. It depends upon whether their sills were at pavement level or above it when made.

The wide doorway of Intermediate II date on the northern side of the well-room in House V was entirely occluded in this period by a staircase, 3 ft. 6 ins. wide, rising to the west, with treads 9·25 ins. broad by 8 ins. high.[1] The entrance to the well-room at this time was probably from the west though that wall was badly damaged and the actual position of the door could not be ascertained. Against the eastern part of the southern wall of this well-room at the level – 13·6 ft. were the remains of an unusually fine pavement of two courses of bricks 10·4 ×5·35×2 ins. in size, laid on a 3 ft. 4 ins. thick layer of kiln-refuse, which in turn rested on a stratum of ash about half an inch thick. This pavement was carefully bordered with bricks set on their shorter edges so as to project 5·5 ins. above

[1] Level of lowest step, 14·5 ft. below datum.

the floor level. I do not think that this thick layer of pottery kiln-refuse was intended to drain the room; it was merely used as a convenient filling which would not be liable to settle. Similar material was quite frequently used for the foundations of walls, especially in the Late Period.

In the common courtyard of this group of houses was a brick-lined pit with a paved floor (66), 5 ft. long by 2 ft. wide and, when found, 1 ft. deep. Though this was probably a cesspit, no drains had survived in its vicinity.

The drainage jar fed by a little channel made of two roughly scooped-out bricks (Pl. XXXVIII, d) was found in Fore Lane outside room 80 of House VII. The base of the aperture in the wall through which the channel passed was 12·9 ft. below datum.

Against the partition wall between rooms 54 and 63 was a stairway, 2 ft. 10 ins. wide, whose lowest step was 14·5 ft. below datum. It was so short, however, that it could not have led very far, unless the space between it and the northern wall of the rooms was bridged in some way, leaving a doorway under the stairs.

The well-room of House VI was entered from the north ; and it is likely that there was also a door on the western side of the room communicating with room 61 and the rest of the house, but, if so, later additions and repairs have masked it. There are no traces of the pavement of this period.

House VII now had its own courtyard (55, 58) which was later filled in with mud-brick to make a platform above the reach of floods. The inner faces of the enclosure-walls were very rough. The same entrance into room 56 served again, its sill being raised the necessary amount ; but another entrance was made into the adjoining room (57) with its sill 12·5 ft. below datum.

The southern and eastern faces of Houses VI and VII were re-faced with masonry one brick thick as they had become very much weathered. It is difficult to say whether this facing should be attributed to the Intermediate II or I Phase as it reached down to some 15 ft. below datum.

The walls of part of House VIII of this period were remarkably thin and very roughly constructed. They might be taken for the remains of cattle-shelters, were it not for the two carefully laid pavements in the S. E. corner of room 20.[1] In the western wall of this room, which was some 14 ft. 8 ins. by 12 ft. in size, were three niches, 2 ft. 4 ins. wide by 1 ft. deep, with their floors 13·3 ft. below datum. Against the eastern side of room 22 was a roughly constructed bench, 2 ft. 2 ins. wide.

Late III Phase (*Pl. XIX*). *Average level: – 9·9 ft.*—Of the Building I nothing whatever remained in the Late III Phase.

The House II of the period with its annexe (IX) was very badly wrecked and only two doorways could be found in the annexe. That on the eastern side of room 35 was 3 ft. 3 ins. wide with its sill 9·2 ft. below datum, whereas the door-sill of room 33, of the same width, was 8 ins. lower.

The walls of House II though destroyed almost to foundation level were as remarkably thick as in the previous periods. The brick door-sill of an entrance, only 1 ft. 9 ins. wide, into chamber 87 from the outside had disappeared.

[1] Both were 13·9 ft. below datum.

The passage-like vestibule 92, 93 was entered from the east by a doorway at the southern end of the lane 39. This entrance was, however, blocked up by a thin wall in the Late Ib Phase. The well-preserved stairway at the western end of this vestibule (93) was 3 ft. 11 ins. wide, and its seven treads which averaged 8·25 ins. in breadth by 8·5 ins. high were built of bricks measuring 9·75×4·25×2·25 ins. (Pl. XLVIII, a). Judging from its base-length, 25 ft. 10 ins., this stairway must have been a considerable height ; allowing for a landing, 4·5 ft. square, at its eastern end, it would have risen at least 15 ft. Like most of the staircases at Mohenjo-daro it was very solidly built, except at its eastern end (91) where there was a rubble filling. It appears that this staircase led to a separate self-contained flat above, which must have enjoyed absolute privacy. For after the closing of the doorway that existed for a time between the passage and room 89, the former led solely to the stairway, which could only be reached by traversing the whole length of the passage. The lane, moreover, from which the passage was entered was, in its latter days at any rate, a cul-de-sac. Room 29 and the stairway in the passage 92, 93 were probably built at the latter end of the Late III Phase.

A drain, whose channel averaged 5·5 ins. in width by 1 ft. deep, ran down from the passage 92, 93, of House II towards the north with a drop of 3 ins. in a distance of 32 ft.[1] At the north-eastern corner of the building this drain dropped into another, whose channel was some 4 ft. lower that emptied into the drain in Low Lane. A niche, 1 ft. 11 ins. square, on the outside of the wall of room 87, was once a water-chute.

Against the northern wall of room 89, two treads remain of a narrow flight of stairs, only 2 ft. 3 ins. wide. Judging from its base length, this stairway must have risen to a height of 7 ft. ; and more, if we exclude the wider portion at its end. This last may have been a landing, and, if so, the room to which the stairs led was immediately above room 89. Of the southern wing of House II nothing remained but the steening of the well (Pl. XXXVII, g).

So little was left of Houses III and IV that they presented no features of interest. In House V a large expanse of pavement round the well was divided into two portions by a thin partition wall, east of which the pavement was 6 ins. lower than on the west. This pavement of exceptionally well cut bricks, 9·5×4·7×1·9 ins. in size, had the usual edging and sloped down from the level − 11·6 ft. towards the north-eastern corner, where the water ran through a hole in the eastern wall into the drain in Low Lane outside.

The upper part of the steening of the well was built of wedge-shaped bricks, 10·3×3·45−5×2·3 ins. in size down to the level 11·3 ft. below datum. The uppermost courses of all, to a depth of 1 ft. 3 ins. from the present top of the well, were of ordinary bricks, 11·4×5·4×2·8 ins. in size.

At this period House VI was entered from the north by a doorway, 3 ft. 8 ins. wide. The sill of another larger doorway in the southern wall was a few inches lower, and there was a comparatively narrow second entrance from the south to room 61.

The ground-plan of House VII was very much the same as in the Intermediate I Phase, but it seems now to have been entirely self-contained.

Late II and I (b and a) Phases (Pl. XX). Average levels: − 7 ft., − 5 ft. and − 3·2 ft. to +0·8 ft.—The remains of the buildings of the Late II and I Phases were in good condition and their ground plans more or less complete.

[1] The bed of the southern end of its channel was 10·4 ft. below datum.

House I, which was 40 ft. N.-S., by 36 ft. E.-W., was exceptionally well built, though none of its massive walls rested on masonry of earlier date. The average level to which its foundations reached was 7·2 ft. below datum, and in places its walls still stood some 3 ft. high. The bricks used in their construction were 11×5×2·25 ins. in size. Its interior proved most uninteresting; not one of the rooms was paved, though it is possible that brick floors that once existed were removed in still later times. Footings at the levels − 16·3 and − 5·4 ft. point to the occupation of this house in both the Late II and Late Ib Phases. It was quite refreshing to find such excellent masonry and such careful attention to alignment in a building of the Late Ib Phase, and it seems probable that the house was one of peculiar importance. Indeed, it is not improbable that it was the house of a deity rather than of a notable of the city, and the close proximity of the well in the large courtyard, an average of 51 ft. long by 17 ft. broad, to the east of the building certainly suggests this. It will be noticed that this court is completely shut in except at its S. W. corner, and there may have been an entrance from it to room 14. The topmost 1 ft. 10 ins. of the steening (Pl. XXXVII, g) of the well in this court was very roughly built of bricks of all sizes, even including broken ones. This section, which dates from either the Late Ib or Ia Phase rests on a coping of Late II date which was much more carefully built.

East and south of the well are the remains of a neatly laid pavement of 10×5×2 ins. bricks. An edging 2·25 ins. high once ran all round this pavement which was laid in the Late II Phase.[1] The thin walls to the south of the well stood only some 1 ft. 2 ins. high and were of the same date as the topmost portion of the lining.[2]

The massive walls of House II were raised yet again. But, unfortunately, they had mostly been weathered down to below the level of their door-sills. Room 29 was entered from the west through a doorway only 2 ft. 6 ins. wide, whose sill was 7·8 ft. below datum. In it a small area remained of a pavement which sloped toward the west where an earthen jar (Pl. LVIII, 13) served to collect the water from it to percolate into the ground beneath through the base of the jar.

The passage 91–93 was still entered from the southern end of the lane 39, but the door was eventually blocked up in the Late Ia Phase.

The doorless cell-like apartment (S. E. corner) was filled up with mud-brick to the level 3·9 ft. below datum, probably originally even higher; and there seems no doubt that the platform thus made was connected with the staircase as a landing or served to raise the room built upon it above the risk of floods or damp. Chambers 86, 88, 89 and 90 were also filled with sun-dried brick in the latter part of this period.

The lane (39) between Houses II and III averaged 5 ft. 4 ins. wide. A long stretch of unburnt brick walling along its eastern side must have been built in the Late Ib Phase, for its foundations were nowhere more than 6 ft. below datum. A thin wall was built across the southern end of this lane to block it in the Late Ib or Ia sub-period.

The annexe to House II was apparently not rebuilt in this period, and in the practically open space IX formerly occupied by it there was little of note save a large unfinished kiln, not perfectly circular, whose inside diameter was

[1] At the level 7·3 ft. below datum.

[2] Their foundations were 4·1 ft. below datum.

15 ft. 10 ins. one way and 15 ft. 5 ins. the other. Its wall was 1 ft. 6 ins. thick and very roughly built of broken and unbroken bricks of various sizes. The floor was unpaved and the highest part of the wall stood 5 ft. above the foundation level which was 8·5 ft. below datum. The two short parallel walls, 2 ft. 11 ins. apart, south of the kiln were possibly the foundations of a fuel-hole or flue. A shallow rectangular receptacle to the south-east of the kiln, 3 ft. 8 ins. long by 1 ft. 10 ins. wide, and paved with brick was lined with bricks placed on edge and may have been a feeding-trough.[1]

In the remains of a room (30) to the south-east of the kiln was a dilapidated ablution platform of the Late II Phase.[2]

House III was so badly damaged that even the doorway into it from its courtyard (44) could not be found. The courtyard was irregular in shape, some 26 ft. long by an average of 21 ft. wide. This building was of Late Ib date, for the foundations of its thin walls were only 6·1 ft. below datum. In the thin wall between rooms 48 and 41 were two niches, 8 ins. deep. At the western end of 41, two treads alone remained of a very substantial stairway, 2 ft. 3 ins. wide. There was apparently no doorway into chamber 40, and it was possibly filled up with rubble and used as a platform to support one of a series of upper rooms tc which access was afforded by the stairway.

House IV was possibly entered from Long Lane ; part of the northern wall of room 49 had almost completely disappeared with any doorways that there might have been. There was another entrance, however, some 3 ft. wide, from the passage between Houses III and IV through a vestibule (50). The bricks of the door-sill had been removed.

Most of the walls of Houses III and IV rested either on rubble foundations or, as was particularly noticeable in House III, upon small nodules of burnt brick which seem to have been the refuse of a kiln. This latter foundation material has been noticed in other parts of Mohenjo-daro, and as it was apparently an innovation in the Late Period, it will perhaps assist us later in correlating the levels of the buildings in the various areas. The average base level of this foundation layer is – 7·7 ft.

The western portion of House V was fairly well preserved. It seems originally to have shared the whole of the large court 52–4 with House VIII; but later a portion was partitioned off for the exclusive use of House V by a thin wall which stood 1 ft. 3 ins. high when cleared, whose foundations show it to have been built in the Late Ib Phase. The sills of the doorways in this wall average 5 ft. below datum. The ablution pavement in room 64, 65, 67 sloped to the north, where it was about 5·8 ft. below datum, and it was bordered all round with bricks set on edge to project about 2·5 ins. above the pavement. The southern end of the pavement was nearly 6 ins. above the level of the northern end and formed a square platform on which the bather probably dried himself. The thin walls that cut off the N. W. corner of this bathroom were only a few inches high and judging from their well-preserved copings were never any higher. Perhaps the water-jars were stored in this corner.

Along the northern side of the passage 66 a well-preserved drain, covered with bricks laid flatwise, sloped towards the west. Its channel, 5 ins. wide by 6 ins. deep, received the drainage from the bathroom just described.

[1] Its level was 6·2 ft. below datum.

[2] 8·1 ft. below datum.

Rooms 62 and 68 once had direct access to the bathroom, but later the two doorways from these rooms were bricked up, probably for the sake of privacy for the bather. A cross-wall was also built in the Late Ib Phase to cut off room 68 from the narrow passage 66 ; this wall stood only a few inches high when cleared. A flight of steps in the S. E. corner of room 62 was 3 ft. 1 in. wide. Of it only three treads remained, averaging 7·75 ins. broad by 9·25 ins. high.[1] Though the southern wall of this room was partially destroyed at its western end, there is no reason to think that there was ever a doorway into either House VI or VII.

The size of House VI seems to have been considerably smaller during this period, for rooms 59 and 60 appear to have been transferred to House VII, though no doorways remain definitely to decide this point. To the east of House VI in Low Lane there is a well-built cesspit, 4 ft. long by 2 ft. 6 ins. wide and 2 ft. deep, with a brick floor at the level – 9·8 ft. A drain sloped from the upper part of this pit towards the north. The rectangular aperture, 1 ft. 6 ins. high and 5 ins. wide, through which the well-room drained into this pit was found for some unknown reason, to have been roughly blocked up with broken brick on the outer side. In the Late Ib Period, the well-room 73–76 was still further sub-divided by cross-walls which when cleared averaged 2 ft. 4 ins. in height,[2] but the reason for this is very obscure. Nor is the purpose of a brick platform, 4 ft. 1 in. long by 3 ft. 9 ins. wide, to the north of the well any more apparent ; it is too far from the well (and moreover separated from it by a cross-wall) to be an ablution pavement. Immediately west of it was a narrow flight of stairs of roughly built steps 2 ft. 7 ins. wide, possibly of Late II date, whose treads were 7·25 ins. broad and 9·5 ins. high.[3] Still further to the west is another better built flight of steps whose lowest tread at the level – 5·9 ft. dates it to the Late Ib Phase.

Fore Lane between House VI and Block 4 opposite averages 6 ft. 4 ins. wide at this level. In the Late Ib Phase this lane was blocked by a wall placed diagonally across it, which when unearthed was 2 ft. high with its foundations 7·9 ft. below datum.

House VII presents certain unusual features. Its outer walls still stand high (Pl. XXXVII, c), though the inner ones were so far destroyed that no traces of the doorways remained. There were the remains of a thick pavement of the Late Ia Phase in room 80, only 2 ft. below datum. The thin facings (shaded in the plan) around the walls of the large room or courtyard 55, 58 were constructed of alternate courses of burnt and unburnt bricks.[4] The room or court was also sub-divided by a series of thick cross-walls of unburnt brick which averaged 3 ft. high when cleared and reached the level 1·6 ft. below datum. There can be no doubt that a high platform was constructed here, but whether any rooms were built upon it is an open question. If they had been, they would have towered high above the surrounding buildings. The good state of preservation of the outer walls of this house is accounted for by the fact that the denudation of mud-filled chambers proceeds much more slowly than in the case of rooms not so filled.[5]

[1] The lowest was 4 ft. below datum.

[2] Their foundations were some 9·1 ft. below datum.

[3] The lowest step was 6·7 ft. below datum.

[4] *Cf.* the walls of rooms 11, 12 and 17 in House II, Block 17, of the Northern Section, and also a wall on the northern side of Long Lane at its western end. These walls also are to be attributed to the Late Ia Phase, and are described in Chap. VII.

[5] The levels of the corners of this building are : N.-E., – 3·7 ft. ; N.-W., – 1·4 ft. ; S.-E. – 2·5 ft. ; and S.-W., – 1·5 ft.

House VIII was obviously built at the same time as the enclosure-wall of the court to the west of it ; in both cases the walls are very thin. It was subdivided into very small rooms by partition walls whose masonry is so poor that it is remarkable that they stood for any length of time. This house was entered from Fore Lane by a doorway of Late Ib date,[1] and also from the courtyard (53). In the southern wall of room 25, a narrow aperture, 5 ins. wide by 11 ins. high, served to drain a pavement that presumably once existed in this room.

The large courtyard (53), as already mentioned, was once shared with House V. Including the portion partitioned off, it measured 28 ft. 6 ins., E.-W. by 24 ft. 9 ins., N.-S. There were probably certain public rights attached to this piece of ground, for there are no indications that it was ever entirely built over. Moreover, besides being accessible from Houses V and VIII, it was entered from the narrow passages to the east and west of House III, though these were eventually blocked up when Houses II and IV were repaired.

Block 8 (*Pls. XVI–XXI ; XXIII, 9, 10 ; XLIII, d ; XLIV, a, b*).

Intermediate II Phase (*Pl. XVII*). *Average level : – 15·9 ft.*—A portion only of this block has been excavated down to the base of the Intermediate II stratum, with the result that nothing appears in the plan of the Intermediate III Phase save a well and traces of a thick wall whose somewhat indefinite inner face awaits further examination.

On the south and east this block is bounded by Long Lane and Low Lane, each of which we have cleared to a lower level. To the west the long passage-like room 35, 38, is included with House III of Block 9; but beneath this room indications were found of a lane running north to south which in Intermediate III times, as seen in Pl. XVI, bounded the block on this side.

During this phase the southern portion of this block was clearly a very important building with thick, well-built walls. It was entered from Low Lane by a doorway, 7 ft. 10 ins. wide, whose jambs were so worn and rubbed that it seems likely that pack-animals passed through it to and from the courtyard of the house, which was reached by a second door to the right of the paved vestibule.[2] Straight ahead across this vestibule was a paved well-room beyond which other apartments were reached and a passage (4, 5) leading to what was probably another courtyard (8–13).

The well in room 19 is 2 ft. 2 ins. in internal diameter and was in use up to and during the Late II Phase.[3] The doors on each side of the well-room and four doorways beyond, which average some 2 ft. 10 ins. in width, were all in use in both the Intermediate II and I Phases, though their jambs and sills were raised in the second of these sub-periods to accord with the general rise in level. A doorway from Long Lane into the well-room that was blocked up later is only distinguishable from outside. It was 4 ft. 4 ins. wide and its sill 16·3 ft. below datum.

A blocked-up doorway (2 ft. 11 ins. wide) is to be seen between passage 4 and 5 and chamber 3, 6. This was used during the Intermediate II and I Phases

[1] Its sill was 5·6 ft. below datum.

[2] The sill of the entrance door was 17 ft. 6 ins. below datum, as also was the paving in the well-room beyond.

[3] The present top of this well, which appears to be the actual coping, though much weathered, is 6·7 ft. below datum (Pl. XLIV, b).

and was finally given up in Late III days ; the blocking was so poorly done, however, that the Late III masonry resting upon it has sagged woefully. The same is true of a door between room 18 and the large court 16, 20, 21.

In the Intermediate II Phase the large courtyard 16, 20, 21 measured 34 ft. 10 ins. by 16 ft. 6 ins. In addition to the entrance from Low Lane through the paved vestibule 24, it was also entered by another doorway from the west wide enough for the passage of pack-animals or cattle. The corner room 1, 7 was found to have been filled in with sun-dried bricks carefully cemented together with mud up to the level 15·5 ft. below datum, but we have not yet reached the base of this filling. These sun-dried bricks were of three sizes, namely :—13·9×7·35×3·5 ins., 15×7·15×3·1 ins., and 14·55×7·25×3·4 ins., all considerably larger than the burnt bricks used in building Mohenjo-daro.

Intermediate I Phase (*Pl. XVIII*). *Average level: – 13 ft.*—The walls and doorways of Block 8 in this sub-period were well preserved, though it will be noticed that the former were thinner than those of the Intermediate II Phase upon which they rested, so much so that the courtyard was perceptibly larger.

In general the arrangement of the house was practically the same as in the previous sub-period. The doorways of the southern series of rooms occupy the same positions with the addition of entrances to rooms 1, 7 and 24 that in the previous phase had been filled up with mud-brick to support rooms above. These former platform cells apparently now became neatly paved ground-floor rooms.[1] At the same time the width of the main entrance from Low Lane was reduced to 6 ft. 10 ins. wide. The courtyard was now partially roofed over and the presumption is that pack-animals or cattle no longer figured in the household economy. The other entrance to the courtyard from the west was also closed with a filling of sun-dried brick.

The roofing of the western end of the court was supported by an unusual tapered pier of burnt brick, which was some 3 ft. square at its base and 2 ft. 6 ins. at the top, and when cleared still stood 8·3 ft. high.[2]

With the closing of the western entrance to the courtyard, the northern end of passage 5 was also closed by building a thin wall, one and a half bricks thick, across it. This passage had seen a good deal of traffic in earlier days, for its western wall showed marked signs of rubbing.

The series of three rooms to the north of the courtyard were entered by a doorway, 2 ft. 3 ins. wide,[3] into the central one, from which lateral doors with their sills at the same level gave access to the smaller side rooms.[4] These rooms had almost certainly been in use in the previous period, but when the walls were raised, all trace of the earlier doors was obscured by the careful bonding in of the new masonry.

Late III Phase (*Pl. XIX*). *Average level: – 9·9 ft.*—The southern portion of the block seems at this period to have been sub-divided into two houses by the simple expedient of doing away with the door between room 17 and the passage 4, 5. The western portion was now entered from Long Lane by a doorway at the south of passage 4, 5, measuring 3 ft. 8 ins. wide, with its sill 11·3 ft. below

[1] Both pavements were at an average level of 13·4 ft. below datum.

[2] The level of its base was 13·4 ft. below datum.

[3] Its sill was 12·1 ft. below datum.

[4] No actual doorways were found and therefore their positions could not be noted on the plan.

datum. The walls of this house had been destroyed well-nigh to foundation level and the northern wall of its courtyard had entirely disappeared. The large chamber 7 had been repaved at a higher level.

There was an exceptionally well-made water-chute, some 1 ft. 8 ins. wide, in the thickness of the southern wall of chamber 6, which may have served to carry rain water from the room to the drain in the street outside, whose channel was some 1 ft. 3 ins. deep by 7·5 ins. wide.[1] This chute may equally well have drained an ablution pavement or privy in a first-floor room. The walls of the house were quite thick enough to carry another floor and the mass of masonry in room 7 possibly supported a stairway. A sectional drawing of this chute is seen in Pl. XXIII, 10.

The House II of the Late III Phase preserved the general arrangement of earlier times, but a fresh doorway was made into the now single long room 13, 15, 22 rather to the west of the earlier door. The entrance to the well-room (19) was also shifted somewhat further north.[2] The pavement beside this well was 2 ins. below the level of the door-sill. It consisted of two courses of cut brick[3] laid on two of ordinary bricks, these in turn resting upon bricks laid on their longer edges at definite distances apart. Below these again was a thick layer of pottery refuse, and the idea seems to have been that the spaces beneath the pavement together with the porous foundation layer would ensure the quick drying of the pavement. A portion of this pavement is clearly seen in the lower left-hand corner of Pl. XLIV, b. Two sloping water-chutes in the thickness of the southern wall served to drain the surface of this elaborately built pavement.[4] Each of these chutes is 5·25 ins. wide, and they are really beautifully made from cut bricks, between which the joints are remarkably fine. The mason who was responsible for their construction was an artist at his job. The bases of these chutes were some 14 ft. below datum and the masonry around them projects slightly from the face of the wall and was as carefully finished as the chutes themselves. The whole makes quite a decorative feature in the monotony of an otherwise very uninteresting wall.[5]

The group of rooms between House II and Block 8A to the north are a new feature : and it is difficult to say whether they formed an annexe to House II to compensate for the separation from it of House I, or whether they formed a separate little dwelling. The drain in room 48, 49 probably once communicated with the drain in Low Lane and there may once have been a bathroom at the western end of the room.

Here and there in the ruins of Mohenjo-daro, bricks of unusual size, averaging 22×11·6×3 ins., have been unearthed. It has been surmised that they were specially made to serve as drain-covers, though they had never previously been found in position. Their use for this purpose is now definitely proved by the unearthing in room 50, in the north-eastern corner of the block, of a short section of drain, whose channel which was 4·75 ins. wide by 10·25 ins. deep was actually covered by them (Pl. XLIII, d). One of these bricks is illustrated in Pl. LIV, 15.

[1] The bed of this drain was 14·5 ft. below datum.

[2] Its sill was 9·6 ft. below datum.

[3] Measuring 10·5×5·75×2·3 ins.

[4] The angle of slope was about 45°.

[5] It could not be photographed owing to the narrowness of the street.

This drain probably dates from the Late Ib Phase, as the top of the covering bricks was only 12 ins. below a pavement of 5 ft. below datum.

Late II and I (b and a) Phases (Pl. XX). Average levels: – 7 ft., – 5 ft., and – 3·2 to + 0·8 ft.—The width of Low Lane beside Block 8 was during these periods some 8 ft. 6 ins., and it was found to have been closed a little way from its northern end by a wall which when cleared stood some 2 ft. high with its top 7 ft. below datum. This wall, then, was built in the Late II Phase, and it may have been erected for protection against raiders from outside, or possibly, even rioters within the city.[1]

A short staircase of four treads, nearly 4 ft. wide, built in Low Lane against the eastern wall of House II was fairly well preserved. The lowest tread being 7·7 ft. below datum, this staircase was of Late II date; and since the uppermost step never reached to the top of the wall against which it rests, it is possible that these steps served merely as a mounting block.

The House I of this period still had a spacious courtyard, whose northern wall had escaped destruction. But the court had been filled in with mud-brick, presumably to form a platform for buildings of later date which had been entirely destroyed. The little room 3 was floored all over with a pavement, 4 courses thick, which was drained by a chute in the southern wall into an unpaved soak-pit of somewhat irregular shape.[2] A protecting wall was built around the outlet of this chute so that the passer-by should not be splashed. The eastern wall of room 7, though resting on the wall of the previous period, was not strictly in alignment with it; the footing thus produced was 3·6 ft. below datum and the top of the wall as it stood was some 3 ft. higher. These levels date the upper walls of this building to the Late Ia Phase.

Despite the fact that the masonry is better than in most houses of the Late II and I Phases, the bricks used in the construction of the walls of this house were of various sizes—evidently they had been quarried from older buildings—measuring 12·2×6×3 ins.; 11·5×5·2×2·75 ins., 10·5×5·1×2·5 ins., the first being the most frequent.

The arrangement of the House II of this period differs remarkably from that of the preceding phase. It was entered from Long Lane by a doorway, 4 ft. 8 ins. wide, whose sill was 8·4 ft. below datum.[3] Extra partition walls suggest an increase in the number of the inhabitants, which we have seen indicated elsewhere in the city at this time. The western end of the court was not merely roofed over with the support of the tapering brick pier before described; it was now partitioned off at the position of the pier to add another room to the house, the southern end of which was paved.[4] In the south-western corner of room 17, a brick drain, 7 ins. wide by 8 ins. deep and of Late Ib date, communicated with the street outside through an aperture in the southern wall. A sloping water-chute of the same date in the thickness of the wall beside it was 2 ft. 5 ins. wide by 2 ft. deep (Pls. XXIII, 9; XLIV, a). It was constructed with three bricks of unusual size, namely, 20·5×8·5×2·85 ins. These bricks were clearly not made for this special purpose for they were barely big enough for the width of the

[1] This wall is seen in Pl. XIX.

[2] This pit averaged 2 ft. 7 ins. by 2 ft. 1 in. by 1 ft. 6 ins. deep, and its floor was 10·8 ft. below datum.

[3] This was found blocked up and could only be perceived from the inside.

[4] At the level 4·4 ft. below datum.

chute. They originally served to cover drains, though only in one place, curiously enough in room 50 of this same house, have we as yet found pottery drain coverings of this size. The walls of the well-room 19 were badly damaged, but the remains of the door-sill lie 4·9 ft. below datum. The coping of the well at the level – 6·7 ft. (Pl. XLIV, b) was made of the wedge-shaped bricks, 10·9 ins. long by 4 to 5·6 ins. wide and 2·5 ins. thick. These bricks were not accurately fitted together and give the impression that they were originally intended for a well of larger diameter. In Long Lane outside this well-room was a brick-lined pit, 1 ft. 6 ins. square and 2 ft. 9 ins. deep, which received drainage from the well-room.

In the south-western corner of room 22, two treads remained of a flight of steps. Of these the lower tread was only 3 ft. below datum, so that this stairway was of Late Ia date. The masonry west of it evidently carried this stairway further. The remains of a footing at the level – 4·2 ft. along the greater part of the eastern wall of this room shows that this wall was raised at the time of the building of the staircase.

Apparently the new rooms of the previous period to the north of House II were now definitely annexed to it, for the communicating doorways were still existent. A new house (III) was built immediately north of House I, but its arrangement is somewhat obscured by the total demolition of its northern wall and the bad condition of most of the others.

CHAPTER V.

DK AREA, G SECTION, SOUTHERN PORTION, BLOCKS 8A TO 12A.

Block 8A (*Pls. X, b ; XIX–XXI ; XLIII, a, b, c ; XLV, b, c, d*).

Late III Phase (*Pl. XIX*). *Average level : – 9·9 ft.*—Block 8A, whose very thick walls average 4 ft. 11 ins. in breadth, has been cleared down to a depth of about 12 ft. below datum and has proved to be a most interesting building, which at the lowest level laid bare seems to have belonged to the Late III Phase. It is seen in the plan (Pl. XIX) to be a large rectangular structure, and though not entirely accurate in its lay-out it was carefully built. Its length inside is 76 ft. and its width at the western end 26 ft., N.-S., but a deep recess along nearly half the southern wall makes the eastern end considerably wider.

At intervals along the walls there are a number of buttresses, which doubtless supported either the roof beams of a hall or—which seems to me more likely—carried an open gallery that perhaps gave access to small rooms behind it (Pl. XLV, b, c, and d). If the latter was the case, the gallery must have projected beyond the buttresses, and the rooms to have been of any consequence would have overhung Central Street as well as topping both wall and buttress. The walls of these rooms need not have been of any great thickness ; a combination of timber and brickwork such as is seen in India to-day would have sufficed without making them dangerously heavy.

This building was entered from Low Lane by a doorway, 4 ft. 11 ins. wide, in its south-eastern corner, whose sill was originally 8·3 ft. below datum, though it was raised 1 ft. at a later period. To the right of the doorway, the visitor passed the entrance to a small thick-walled chamber built against the middle of the eastern wall, in which was a well with its coping raised a little above the floor that was paved at the level of the door-sill.

There is little doubt that this was not an ordinary dwelling-house. Nor, though at first I thought that it might be a temple, is it possible to retain that view in the complete absence of any objects of religious significance within the building or of anything in the nature of a shrine for a statue. A khan would have required store-rooms on the ground-level, to say nothing of a gateway wide enough to admit loaded animals ; and the most probable explanation of this building with its well close beside the entrance seems to be that it was some kind of hostel for pilgrims or travellers.

Late II and I (*b and a*) *Phases* (*Pl. XX*). *Average levels : – 7 ft., – 5 ft., and – 3·2 to + 0·8 ft.*—In the Late II Phase, the building underwent various alterations, though the general plan was more or less retained (Pl. XX). One of the four buttresses along the northern wall was enlarged and re-used, and a new one made to replace the two easternmost. A small, vestibule-like chamber (36), 10 ft. 6 ins. by 6 ft. 8 ins. with very thick walls, was now built up against the middle of the northern wall—the apparent reason for the alteration in the arrangement of the buttresses, one of which it covered—with two narrow doorways,[1] north and south, to give access from Central Street to the building (Pl. XLV, b).

In the street just to the west of the entrance to this vestibule a large brick-lined pit was unearthed, measuring 5 ft. 2 ins. long by 3 ft. 5 ins. wide and 3 ft. 11 ins. deep, whose highest part is now 6·6 ft. below datum (Pl. X, b). At the

[1] About 2 ft. 4 ins. wide, with their sills some 8 ft. below datum.

bottom there are the openings of drains in both the eastern and western sides, each 1 ft. 3 ins. high by 8 ins. wide. This pit was apparently built in the Late II Phase, possibly on the site of a Late III structure, and was raised in the Late I Phase. Into it, as is seen in the illustration, drainage flowed down a well-constructed chute in the thickness of the wall, which in turn received it from a pottery pipe, the broken top of which still projects upwards from the remains of the wall. This pipe whose internal diameter is 6 ins. cannot be properly examined owing to the masonry that still surrounds it, but I have no doubt that it is of the same shape as one from House VI, Block 9 (Pls. CVIII, 30 ; CX, 35) which is dated to the Intermediate I Phase. Our later specimen is presumably of Late I date, for the part of the wall into which it is built was obviously a reconstruction. The sloping chute with which the pipe connects dates from the Late II Phase, as its base is 8·2 ft. below datum, a dating which is corroborated by the greater part of it being now inside the pit instead of above it. This alteration was, of course, necessitated by the raising of the sides of the pit owing to the rise in level of the street.

The building of the vestibule was made necessary by the walling-off at the same period of the recesses on either side of the little well-room, so that entrance from Low Lane was no longer possible. It seems to have been a period of considerable overcrowding in the city, and on all sides the subdivision of buildings and the erection of partition walls, often based merely on rubble, is evident. In such a position near to the corner of two main streets accommodation must have been valuable, and the owner of the Block 8A building may have disposed of the portion alongside Low Lane, perhaps at a considerable financial advantage.

The new owner or owners—it may have been the city fathers in view of the use to which this property was now put—proceeded to remodel it entirely. A door, 5 ft. 5 ins. wide, now gave access from the street to the well which seems to have been made a public one, and the original door into the closed-off recess was bricked up. The room so formed was subdivided and was possibly occupied by a caretaker. At this period, the coping[1] of the well was raised a few inches above the new pavement, which was laid at the level of 7·7 ft. below datum (Pl. XLIII, b) and carefully bordered with bricks set on edge to prevent spilt water soaking into either the well-coping or the walls.

The room (40, 41) made from the northern recess was also subdivided and, provided with paved floors and a well made drain leading to a cesspit in low Lane (Pl. XLIII, a), appears to have been converted into a public latrine entered from Central Street by a doorway, 2 ft. 4 ins. wide. A patch of carefully laid pavement still remains in the outer room at the level 8·3 ft. below datum. The making of a soak-pit in such dangerous proximity to a well has been observed in other parts of the site in the last phases of the city.

All the new constructions rest on mud-brick filling, where they do not stand on earlier masonry, and the floor of the main building in addition to that of the well-room was raised to the level 7·7 ft. below datum with large mud bricks, 14·35×7·28×3·62 ins. in size. Though, in general, the art of building had begun to degenerate by the Late II Phase, it was possibly owing to the importance and solidity of the older building that these alterations were so carefully done. On this account, I was at first of the opinion that the building as shown in Pl. XIX was of Intermediate I date, but further examination has convinced me that it cannot be ascribed to so early a period.

[1] The internal diameter of this well is 3 ft.

In the Late Ib Phase, with the raising of the level of the block to correspond with the rise of the streets, still further alterations were made. The narrow northern doorway of the vestibule of the main building was enlarged on the west side only to a width of 2·ft. 10 ins., and it is possible that with the abandonment of the city by all but the poorest classes this room was converted to use as a separate dwelling-house by the closing of the southern door. At all events, the northern door was again widened to 3 ft. 10 ins. in the Late Ia Phase, the last and most degenerate phase of the city's occupation.

In the Late Ib Phase a curious, almost square structure (Pl. XX, 38) was erected in the interior of the main building with its southern wall even partially resting on the ruined wall of the latter. The lowest room of this structure, which measures 11 ft. 8 ins. by 9 ft. 11 ins. was apparently a store-room for it was doorless and entered from above by a stairway, 2 ft. wide, of five treads, the lowest of which was 6·6 ft. below datum. Though solidly built with its western wall as much as 3 ft. thick, this building whose foundation level was 7·7 ft. below datum evidently formed no part of the original building.

Probably to a somewhat later date, the Late Ia Phase, must be ascribed the stretch of paving (32) at the western end of the original building, the walls surrounding which were barely traceable and were perhaps removed anciently by brick-robbers. This pavement, whose bricks measure $11·5 \times 5·5 \times 2·3$ ins., lay only 4·5 ft. below datum.

In the public latrine also alterations were made in the Late Ib Phase. The floor was repaved at the level 5·1 ft. below datum, and another rectangular drain-hole, surprisingly well built with the angle of slope twice broken to prevent splashing, was made in the wall to drain it into a new cesspit in Low Lane, yet nearer to the well (Pl. XLIII, a). On the bricks of both pavement and drain, even to the external faces of those around the outflow hole is a curious brown patina doubtless due to sewage.

With the rise of the level of Low Lane in the Late Ib Phase, the alteration of the well-room also became necessary ; but it seems to have been deemed more economical to make a stairway leading down into it rather than to raise its floor and the steening of the well (Pl. XLIII, b and c). This was done by building a stairway, 2 ft. 9 ins. wide with the lowest step 7 ft. below datum, in the southern part of the doorway into Low Lane, leaving some part of the doorway as an aperture for spilt water to run away. The partition between the stairway and this drain is 1 ft. 7 ins. thick. Four treads, the uppermost of which is not complete, still remain and the stairway may not have been any higher.

In the last phase of the city, this well-room was the scene of a tragedy which involved four deaths. On the stairs were found the skeletons of two persons, evidently lying where they died in a vain endeavour with their last remaining strength to climb the stairs to the street. Of one of them, the badly crushed skull lay on the partly missing top step facing north, the pelvis was on the step below and the vertebrae in position between the two. The left leg which had been flexed and drawn up rested on the same step as the pelvis, and the right leg was still extended. From the bones, even before expert examination, we may surmise that this was a young person, possibly a woman. The second skeleton lay at the foot of the stairway, but the bones were so badly preserved that it was difficult to determine the position of the body. In the photograph (Pl. XLIII, c), the skull is seen to lie on the bottom step between the bones of the legs, which suggests that this second victim fell over backwards just prior to

death. The remains of a third skull lay in the lane outside, but no trace was to be seen of the other bones of the body. In a brick-lined sediment-pit, 2 ft. 8 ins. square and now 4 ft. 8 ins. deep, just outside and a little to the north of the entrance to the well-room (Pl. XLIII, a), the skull of a fourth body was found, which must have been thrown or fallen in when the pit was still in use, for it rested on the floor.

There seems no doubt that these four people were murdered, but who the murderers were, whether raiders or dacoits, it is difficult to say.[1] But it can be regarded as almost certain that these skeletal remains date from the latter end of the occupation of Mohenjo-daro and are not later intrusions. The facts that some of the bones of one of these skeletons rested on the brick pavement of the well-room and that the skull of another lay on the floor of the sediment-pit prove beyond doubt that both well-room and pit were in actual use when the tragedy took place; they could hardly have been open for long after the final desertion of the city.

Block 9 (*Pls. XVI–XXI; XXIII, 1–4, 6, 7; XXXIX, a–f; XLI, e; XLIII, e, f; XLIV, e, f; XLVIII, b; XLIX, b–d; L, a, c, d*).

Intermediate II Phase (*Pl. XVII*). *Average level: – 15·9 ft.*—Beyond a few isolated walls very little remains of the buildings of this block of the Intermediate III Phase, though a large portion of its southern side has been cleared to an average depth of 20·5 ft. below datum. The remains of the houses of the Intermediate II Phase, however, present a number of features of interest, though the walls are in many cases only foundations and had suffered badly from brick-quarrying.

Along the southern side of the block, Long Lane makes several right-angled turns. The section between Blocks 7 and 9 (III) and Blocks 9 (VII) and 10 are seen in Pls. XXXIX, f; XLI, e. Central Street forms the northern limit (Pl. XIII), though it does not appear in any of the plans before the Late II Phase. To the east, this block was separated from Block 8 by a narrow lane, which is clearest in the plan of the Intermediate III Phase (Pl. XVI); it was built over after that time. The western end of the block abuts against the eastern wall of Block 12.

A general view of this block from the north-west is seen in Pl. XXXIX, e, with House VI and its well in the middle distance. Many of the details in the plan do not, however, appear in the photograph as they had already been removed to facilitate deeper digging when it was taken.

Of the House III of this period but little was left save a somewhat roughly paved chamber, 6 to 9 ins., E.-W., by 6 ft. 5 ins., N.-S., in its south-eastern corner, which was entered from the west by a doorway, 3 ft. 4 ins. wide, with its sill 17·9 ft. below datum. The floor of this room sloped to the south-eastern corner where the water ran through a small aperture in the wall into the street drain outside.

Room 35, 38, immediately east of and entirely separate from this bathroom, was entered from the north by a small doorway which was found to have been bricked up at a later date. I have already mentioned that in the Intermediate III Phase a lane existed where this room was subsequently built.

[1] We now suspect the former; Chap. XIX.

House VIII, next to the west, must have been a very important building if one can judge by the exceptional thickness of its main walls. It was commenced in the Intermediate II Phase, for its foundations do not descend below the level – 16·5 ft., and it appears to have been fitted into a curious house (VI), beyond again, leaving a passage (49) between. The arrangement of the rooms of House VIII is very obscure ; the partition walls were very thin and built at unusual angles. The remains of a pavement in the central room (13, 14, 16), however, makes it probable that it was an ordinary dwelling-house.

The curious skew-shaped building VI was probably another dwelling-house. It was entered by a doorway, 4 ft. 2 ins. wide, in the middle of its eastern side.[1] At the southern end of the passage 49 there was a considerably wider entrance, 9 ft. across, to the well-room which was probably in constant use by the occupants of neighbouring houses also. The internal diameter of this well, whose steening was raised to the level – 13·4 ft. in the subsequent period, was 2 ft. 6 ins. and its lining was, as usual, built of wedged-shaped bricks, 10·5×4·5×2·5 ins. in size. It apparently went out of use at the end of the Intermediate I Phase, a rare occurrence at Mohenjo-daro. If this had happened between the Late III and Late II sub-periods, when the city was abandoned for some considerable time, it would not be remarkable. Possibly some one had been drowned in it and its use was discontinued for that reason. In Pl. XXXIX, e, this well is seen in the middle distance. The paving around it had already been removed for excavation beneath. A considerable extent of this paving was fairly well preserved at the average level – 15·9 ft. In places deep cavities had been worn in it by the setting down of numberless water-jars. An ablution platform between the well and chamber 33, at the level – 15·8 ft., was constructed of three courses of brick, of which the uppermost layer was rubbed down quite smooth. Another pavement at the southern end of the passage between Houses VI and VIII was also accessible from the well-room.[2]

House VI was separated from House V by a passage, 3 ft. 8 ins. wide, along the western side of which ran a small drain, whose channel was 8 ins. wide but owing to destruction only 3 ins. deep. This channel drained the well-room of House VI and after a right-angled turn ran northwards with a very slight gradient, namely, 2 ins., in the length that had survived. The isolated room 48 in one of the angles of Long Lane was possibly occupied by a watchman, since its only entrance was from the street.

Only one room (38, 39, 40) definitely belonging to House V had survived. It was entered by a doorway, 3 ft. 4 ins. wide, in its western wall,[3] whose sill was raised in the Intermediate I Phase to bring the doorway into use again. A pavement, some 6 ft. square, at the eastern end of this room was surrounded by a wall, half a brick thick, which stood in places 1 ft. 7 ins. high above the paving but had no door in it. Had this structure been situated in a street, we should have regarded it as a cesspit, but inside a room it may have been a grain-bin. Beneath it lay another pavement of about the same size, some 1 ft. lower. This house was entered from the passage along its eastern side by a doorway, 2 ft. 10 ins. wide, which was blocked up later.

[1] The sill of this door was 16·6 ft. below datum.

[2] At the level 15·7 ft. below datum.

[3] The sill was at 15·4 ft. below datum.

The bricks of the wall between Buildings V and VII were laid in a curious and quite ornamental pattern (Pl. XXXIX, b)—a method of brick-laying which is more frequently seen in the upper than in the lower levels.[1]

House VII was more or less complete, though the walls were broken through in places. It was entered from the little alley to the east of it by a doorway, 4 ft. 8 ins. wide, into an ante-chamber (17). The only feature of interest in the interior of this building is a little staircase, 3 ft. 5 ins. wide, of which only five treads remained, each 8 ins. broad and high.[2] This stairway must have led to the roof or upper storey above a ground-floor room, whose walls had completely disappeared.

Intermediate I Phase (Pl. XVIII). Average level: – 13 ft.—House VII (Pl. XLI, e) at the west of this block was of little interest, the interior walls having been for the most part dismantled by brick-robbers.

Of House III also but little had survived, and the feature of most interest was a curiously concave pavement in room 35, which was so laid that the water collected in its centre and ran down a little open channel chiselled in the floor (Pl. XXXIX, c) and out through a hole in the south-eastern corner of the room to the street outside.[3] In the foreground of the photograph another paved floor (38) is seen which drained into a jar close to its south-eastern corner.[4] The partially blocked-up doorway into room 35 from the west was 2 ft. 9 ins. wide with its sill at the level – 12·9 ft. A second entrance slightly further north was at the same level and 6 ins. wider.

Slightly more remained of the House VIII of this period than of the previous building on this site, and its outer walls were the same remarkable thickness. The arrangement of its interior, however, was very obscure. In the middle of the once important room 17, 18, 42 were the remains of a brick floor at the level 13·7 ft. below datum, made with bricks 10·75×5·25×2·5 ins. in size.

The top of the well in the south-eastern corner of House VI is now 13·4 ft. below datum, and it seems likely that it was no longer in use after this period—unless the little staircase immediately north of it was built in the Late III Phase to give access to the well-room of the previous sub-period from the higher level, in place of the more costly expedient of raising the steening and relaying the floor of the well-room some 3 ft. higher. This is the more probable in that no trace of a pavement was found around the well at the level of the Intermediate I Phase. Pl. XXXIX, a, shows the top of this well with 1 ft. 6 ins. of rubble above it, on which stood a wall of Late date, 3 ft. high.

Again, an ablution pavement, some 5 ft. 2 ins. by 4 ft. 6 ins. in size, made of carefully cut bricks, occupied the southern end of passage 49.[5] This pavement (Pl. XXXIX, a) sloped appreciably towards its S.-E. corner, and the wall to the south of it still stood some 3 ft. high, whereas the other walls around had been partially demolished.

[1] The foundation level of this wall was 18·3 ft. below datum. The ledge along its top is 3 ft. 6 ins. higher.

[2] The lowest step was 17·6 ft. below datum. This stairway was a trifle north of 52.

[3] The level of the highest part of this pavement was 14 ft. below datum.

[4] Its level was — 12·5 ft.

[5] At the level — 14 ft.

On the eastern side of room 33, 34, 35 of House VI, a vertical pottery drain was unearthed, neatly enclosed in masonry (Pl. XXXIX, d). The top of the pipe, which is also illustrated in Pls. CVIII, 30 ; CX, 35, was 15·7 ft. below datum. In all probability there was once a pavement around this drain-pipe which was removed at some later date.

In House V, though it had been partially destroyed by brick-quarrying, several doorways and pavements had survived. The room 38, 39, 40 had been increased in size to 19 ft. 9 ins. long by 12 ft. 6 ins. wide by encroachments on the alley between this and House VI (37, 38). The pavements in the south-eastern corners of the two rooms to the north were in a good state of preservation, especially the one in room 68, 76. Both were 14 ft. below datum, and they were drained through little rectangular apertures in their eastern walls into a small drain in the alley outside. A little staircase (66) against the eastern wall of room 68, 76 was 2 ft. 2 ins. wide with steep treads, 8 ins. broad and 11·5 ins. high.

Late III Phase (*Pl. XIX*). *Average level: — 9·9 ft.*—The northern part of this block which has not figured in the plans of the Intermediate Period now appears, as it has been excavated down to the base of the Late III Phase. The House I of this time was badly wrecked before being rebuilt and only a few walls and a pavement were left. This pavement is 10·7 ft. below datum and a pottery jar sunk in one corner served to drain it.

A large house (II and IV) to the west of House I was apparently entered from the south by a doorway 4 ft. wide.[1] The somewhat curious shape of the long room 4, 5, 7 immediately suggested that its southern wall, and also that part of the southern wall of the house which is parallel to it, were built upon the ruined walls of the Intermediate Period as foundations ; and tentative excavation here has revealed the existence of a much thicker wall of Intermediate I date beneath the southern house-wall. The arrangement of the courtyard which lay north and east of II is very much obscured by the destruction of part of its walls by brick-robbers of later times.

An unusually well-laid pavement in room 8, 9, which was entered from both north and south, is six courses of brick in thickness so that it stands well above the general floor-level. It slopes down to a drain-hole of the usual, upright, rectangular shape in the middle of its southern side, and is bordered with bricks that were first hacked, then carefully rubbed down to about half their thickness—a somewhat unusual feature. Another pavement in the south-eastern corner of the house may have served as a privy ; situated at the end of a long corridor along the front of the house, it was perhaps hidden from view by a matting screen of the kind in frequent use in modern Sindh.

Of House III practically nothing was left save its south-eastern corner. A little channel, 5 ins. wide by 8·5 ins. deep,[2] served to carry off the drainage of this house and also of House I in Block 8. A cesspit beside it, 3 ft. 2 ins. long by 1 ft. 10 ins. wide and 1 ft. 3 ins. deep, also served room 35 of House III. This drain sloped southwards to enter a larger drain whose further course we were unable to find.

[1] 10·9 ft. below datum. The sills of the inner doors are at about the same level and average nearly 4 ft. wide.

[2] The bed of this channel was 10·9 ft. below datum.

Of House VIII practically nothing had survived except a staircase, 4 ft. 4 ins. wide, standing alone and forlorn in an empty space ; but it was not without its interest, since its treads, 10·75 ins. broad by 4·5 ins. high, were made of bricks laid on edge—a very unusual feature.

Of Houses VI (Pl. XLIV, f) and VII only a single wall was left, and a few dilapidated walls represented the northern end of House V, which in the Late II Phase was incorporated in Block 9A.

The thickness of its walls shows the building marked XII to have been of some importance in the Late III Phase, and probably more than one storey high. Two doorways of practically the same width, 3 ft. 3 ins., in its northern wall opened to Central Street. Though still clearly distinguishable on the inside of the wall, despite being bricked up at a later period, they can only be detected on the street side through the slight sagging of the masonry of Late II date above them owing to the settling of the bricks used to block them up.

This building was, unfortunately, so much changed in subsequent periods, both by a number of alterations and by the removal of bricks, that its arrangement in the Late III Phase is somewhat obscured; in fact, the whole of the western wall has disappeared,[1] as well as most of the interior walls—if, indeed, the latter ever existed. It would be unwise, then, to draw any conclusions as to its arrangement or purpose in the Late III Phase.

West of this building is a smaller one (83–88), which might have been a row of three shops all entered from Central Street by doors whose sills averaged 3 ft. wide and 9·1 ft. below datum. The wall marked in dotted lines seems to have been removed some time later, as the outer walls were refaced at either end of it. The two easternmost of these premises were probably lock-up establishments, whereas the two apartments to the west probably formed a shop and living-room attached.

House IX in the N.-W. corner of the block was entered from the blind lane (69) between Blocks 9 and 9A by a doorway, 3 ft. wide, at its north-western corner.[2] The wash-down pavement in the north-eastern corner of the house drained into Central Street.[3] The courtyard, as was usual at this period, lay to one side of the house ; it seems to have been entered from the lane, though its actual arrangement was far from clear.

Below the level to which we have dug on either side, we found that the Intermediate I buildings beneath Block 8A and Building XII in Block 9 were separated by an ancient lane (94, 95), 6 ft. 9 ins. wide. This lane was, however, entirely blocked up in the Intermediate I Phase by a well-constructed stairway whose lowest step was 15 ft. below datum. Nine treads still remain, each 9 ins. high and broad, built up against a solid block of masonry, which may have formed a landing, and which appears in the Late III plan. This stairway will be alluded to again in the description of the Late II and I plan (Pl. XX).

Late II and I (b and a) Phases (Pl. XX). Average levels: – 7 ft., – 5 ft., and – 3·2 to + 0·8 ft.—The whole character of this block was changed with the re-occupation of the city at the beginning of the Late II Phase.

[1] The recess that took the northern end of this wall is clearly seen, though the wall seems never to have been bonded into it.

[2] The sill of this door was 10·4 ft. below datum.

[3] Its level was 10·5 ft. below datum.

Houses I, X and XII seem to have been acquired by a single owner, for they communicate throughout. Indeed, they appear to have been converted into a very fine building, which was probably inhabited by four or five interrelated families, as there are several of the paved floors that appear to denote a dwelling-house. The one south of room 24 at the level – 3·2 ft. was carefully made of cut bricks. The walls which are well preserved mostly date from the Late II Phase, when so much building took place after what appears to have been a more or less complete evacuation of the city—a point commented on elsewhere. Both they and door-sills were thereafter raised from time to time as the general level of the city rose. Unfortunately, the extensive brick-robbing from lower levels that was a prelude to most of the subsequent alterations makes it well-nigh impossible to give a detailed description of these houses during the Late II Phase. Only at the south end of the corridor-like apartment 45, 47 does a pavement remain at the Late II level, – 7·4 ft. This may have been a washing place, as it slopes down to a jar set beneath its south-eastern corner. Though at that time water must have been obtained from the well, 2 ft. 3 ins. in diameter, in the north-eastern corner of the building, we only know that the steening of the well was raised from the level – 9·9 ft. to – 7·9 ft. to bring it once more into use; the floor and doorways of the well-room during Late II days had completely disappeared.

In the Late Ib Phase, the steening of this well was raised again to the level – 4·2 ft., and a very carefully laid pavement (Pl. XLIII, f) round it at the level – 6 ft. bears ample testimony to the constant use of the well ; a number of depressions were worn deep into the floor by the constant dumping of the water-jars. At this period, the well-room was entered from court 91, 94 (XII) by a doorway, 2 ft. 6 ins. wide, at the level 5·4 ft. below datum ; and, as probably in the Late II Phase also, it may have supplied water for animals that were stabled in the court as well as for the occupants of the house. The eastern jamb of this doorway was formed by part of a stairway (Pl. XLIII, f), 5 ft. 1 in. wide, but any possible connection with the original stairway from Central Street (Pl. XIX) has been obliterated by denudation as well as by alterations.

At this period, room 45 to the west of the well-room also communicated with it by a narrow doorway in a thin partition wall. The floor of this room was paved with bricks mostly set on edge (Pl. XLIII, e) to form a washing-place which sloped down on three sides towards a square depression in the floor.[1] This depression was drained beneath the northern wall of the room, which unfortunately, was entirely removed by brick-robbers at a later date, into a channel that ran ultimately into the drain along the southern side of Central Street (Pl. XIII, C). This washing-room, for such it must have been, also communicated with the vestibule 52 through which most of the living-rooms seem to have been reached from the court. In the Late Ia Phase, section I of this house was clearly still in use, for the door-sill into the well-room from the west was raised again to the level – 3·9 ft.

A ledge, averaging 4·5 ins. wide, at the level – 8·4 ft. along the inside of each of the three remaining walls of section XII of this building shows that they were rebuilt in the Late II Phase, when a few partition walls were erected. The lower flight (of Intermediate I date) of the stairway to the east of the building and between it and Block 8A was by now presumably nearly entirely, if not quite,

[1] The highest part of the pavement was 4·1 ft. below datum.

buried in accumulated débris, and a doorway, 8 ft. 2 ins. wide, which was found blocked up, seems to have been made to open on to the former landing of the staircase. The great width of this doorway, through which a loaded pack-animal could easily pass, together with the fact that the corners of the two buildings on Central Street are knocked about and rubbed from the landing level upwards, suggests that section XII was now used as a courtyard in which the newly built partition walls were those of store-rooms.[1] Significant is the additional fact that a doorway, 4 ft. 9 ins. wide, in the southern wall, with its sill at the same level as the new entrance, from now on gave access to room 52 of section I beyond. Indeed, the owner of the dwelling-house may have acquired section XII for business premises ; he may have been a merchant. That the two properties were merged, as suggested above, is further supported by the fact that his successors in the Late Ib Phase carried the drains from two pavements in I by a devious course across the courtyard of XII to the eastern doorway, whence with a zig-zag turn it runs northwards into the drain along the southern side of Central Street (Pl. XIII, C).

If beyond the landing between section XII and Block 8A, the stairway had been carried up still further—the remains of a narrower stairway (Pl. XLIII, f) at a higher level, which has already been mentioned, perhaps point to a tradition of a stairway in such a position—it may be not impossible that in the Intermediate I Phase, the landing served first-floor rooms in both blocks, and that a continuation of the stairway led to a second floor in one or both of them. Subsequent collapse or brick-robbing would quite well account for the disappearance of the upper flight of steps, as of the walls of the upper rooms.

In the Late Ib Phase, or possibly even at the end of the Late II Phase, the row of what I have suggested were shops appears to have been taken over by the owner of the property X in the rear, or *vice versa*. The doorways to Central Street were blocked up and communication opened up with the somewhat badly built property to the south. At the same time a bathroom, or perhaps privy, with its paved floor 6·5 ft. below datum, was made in room 83. Room 87 was also subdivided by a thin partition wall, in which was a narrow doorway, and it was very roughly paved some 1 ft. 6 ins. higher with odd-sized and even broken brick evidently removed from elsewhere.

The buildings II, IV and IX in the western part of Block 9 are of much less interest in themselves than for the light that they throw on the general conditions in the city in the Late III and subsequent phases. A comparison with Pl. XIX shows that considerable alterations were made in them, as in so many of the Late III buildings during the subsequent occupations. In turn, these altered and rebuilt houses (for such they appear to have been from the presence of bathrooms, and of no particular importance) suffered badly, chiefly from the fact that a great deal of subsidence took place in this region, and also from brick robbing for later buildings still. Indeed, the amount of subsidence, as evidenced by collapsed walls and wavy courses of brick interspaced with obvious patches, very strongly supports the suggestion that between the Late III and Late II Phases the city suffered an unusually serious flood and had to be practically entirely rebuilt by such of the inhabitants as returned from temporary exile.

[1] One of these rubbed corners (the western one) is clearly seen in Pl. X, d (left hand corner). It was repaired at a later period.

In Late Ib days, when House II, IV was rebuilt it was divided into two, and House IV thence onwards was served by a small pavement in the south-eastern corner of room 4.[1] In the same period, the owner of House II altered two of his rooms and made shallow recesses in their walls. The slightly crooked isolated wall (10) to the south of House II was built in the curious manner shown in a line drawing in Pl. XXIII, 7. From its level this wall is dated to the Late Ib Phase.

On the southern side of the lane that divides Houses IV and VI there was a cesspit, measuring 2 ft. 11 ins. by 1 ft. 1 in. and 9 ins. deep. The channel of a drain running along the northern side of the same lane was 11·5 ins. deep by only 2·5 ins. wide. Its walls are built of two courses of bricks, sized 10·25×5×5·25 ins., laid on their longer edges which is a very unusual feature. This drain drops a distance of 6 ins. in a length of 16 ft., the base of its channel at its eastern end being − 10·6 ft. (Pl. XXIII, 1).

Probably in the Late II Phase, and certainly during the Late Ib Phase, House IX also was subdivided to accommodate a larger number of people than before. The courtyard was built over to make a second house, whose western wall was so aligned that a deep recess was made in the eastern frontage of the lane beyond ; from which it seems that the wall of the courtyard of the Late III Phase had already been removed for bricks to supply the wants of people who came back earlier to the deserted city. During the Late Ib Phase, the doorway into House IX from this recess in the lane was 3 ft. wide, and its sill 5 ft. below datum. At this date and probably earlier, the lane was made to communicate direct with Central Street by the removal of the wall that in the Late III Phase, and perhaps earlier also, had blocked its northern end.

In all probability court 21, 26, in which were two kilns, belonged to House II, for with the possible exception of the blocked-up doorway in room 24 of House I[2] there was no entrance into the court from any other house. The larger of the two kilns, which is of Late Ia date, stands against the outer wall of House VIII and is practically circular in shape with an inside diameter of 7 ft. 1 in. Its wall which is now 1 ft. 4 ins. high in places was roughly built of odd pieces of brick laid in mud-mortar and plastered on the inside only. The floor of this kiln is at the level − 3·5 ft. and it is perforated with a number of holes which allowed the heat of the fire below to penetrate to the pottery (Pl. L, d). These holes which average 4·75 ins. in diameter were arranged in a ring round the edge of the floor with one hole in the centre. The floor itself averages 5 ins. thick and is supported in the middle by a rough column of brick, as is seen in the line drawing in Pl. XXIII, 2. The door of the kiln was at the south and its sill seems to have been raised a little above the floor inside. It was, however, so badly damaged that its width could only be estimated at 2 ft. 10 ins. The roof was probably domed with an outlet at the top, but no trace whatever was left of it, and what remains of the wall that supported it shows no vertical curvature. We have not found the hole beneath the pavement, through which the fuel was put in, nor any flues ; but this is not surprising, for, save for the column that supported the floor, no foundations were found. The fuel was evidently placed in a rough hole in the ground ; and it was clearly wood, for ashes in plenty lay around the column supporting the floor. No direct evidence was found that this kiln was

[1] At a level of 4·3 ft. below datum

[2] This door was bricked up in the Late Ia Phase ; its sill was at the level − 5·6 ft.

used for pottery, but at a little distance there were dumps of broken pots of the shape seen in Pl. LV, 16.

Another, much smaller kiln, 4 ft. 8 ins. in diameter, was unearthed immediately to the west of the one just described (Pl. L, d). It stood at a considerably higher level, its floor being only 2·7 ft. below datum. The walls, which stand at 1 ft. 6 ins. high in places and are 6 ins. thick, are heavily plastered on the inside with mud which clearly shows signs of burning. In the centre of its floor there is a rectangular column, roughly 12×13 ins., in section, built of bricks of several sizes, which is partially vitrified by heat. I am well-nigh certain that this is really the lower part of a smaller kiln used perhaps for baking vessels of small size. Its central support is certainly like the one found beneath the floor of the larger kiln, and the hole in its side was probably intended for the insertion of the fuel.

Across the eastern end of this same court (21, 26), a roughly built channel, 5 ins. wide by 10 ins. deep, and with sides half a brick thick (Pl. XXIII, 3), runs southwards with a fall of 1 ft. 7 ins. in a length of about 30 ft.[1] The very high level of this drain makes its date very uncertain; but it must provisionally be ascribed to the Late Ia Phase. A wall of the Late Ib Phase had been ruthlessly destroyed to allow this channel to pass through House III, and the drainage fell from an aperture, 9·5 ins. square, in the southern wall of room 29 into a soak-pit in the north-western corner of chamber 28. The top of this roughly built pit, which measured 4 ft. 2 ins. N.-S. by 3 ft. 9 ins. E.-W. and 5 ft. deep, was only 1·9 ft. below datum. That this pit was underground at the time of use is proved by the roughness of the outer faces of its eastern and southern walls, which were only one brick, *i.e.*, 11 ins. thick. In its passage across the court the drain rests in part upon a wall of the Late Ib Phase.

The House III of this period was fairly compact but very roughly built. It seems to have been entered from the passage 41 in the Late Ib Phase by a doorway in the eastern wall of room 29, which was subsequently blocked up. The sill of this door, which was 3 ft. 3 ins. wide, was at the level − 4·1 ft. and its jambs still stood 3 ft. 6 ins. high. It seems to have been replaced by a doorway immediately to the south, which was 3 ft. 8 ins. wide with its sill 4·4 ft. below datum. The north-western corner of room 29 was partitioned off with walls of very rough build, and the two southern doors, each 3 ft. 6 ins. wide, were of later date.[2]

In the little building just opposite this doorway on the other side of the passage 41, there was an ablution place, 8 ft. 1 in. wide by 4 ft. 6 ins. in size, whose surrounding walls had almost entirely disappeared except at the S. W. corner. This bath had the usual border of bricks laid on their longer edges, which stood 4·7 ins. above its surface. It sloped considerably towards the west; so much so, indeed, that there is reason to think that a considerable subsidence took place here. The S. E. corner, which was the highest part, was at the level − 7 ft. and dates this bath to the Late II Phase. The water ran out through an aperture in the western end of the southern wall into a drain running southwards. This ablution place was made of bricks of a very unusual size, namely, 9×5×2·5 ins. They had probably been cut down from a larger size, for the proportion of breadth

[1] The bed of this drain is 2·5 ft. below datum at its northern end.

[2] Their sills were an average level of − 3·7 ft.

to length would have made it difficult to use them for ordinary building purposes. South-east of this bathing place and at a considerably lower level were the remains of a drain whose channel was 11·3 ins. deep by 6 ins. wide, built of bricks measuring 10·5×5·2×2·5 ins. A section of this drain is seen in Pl. XXIII, 6.[1]

At first, rooms 19 and 20 of the roughly built House VIII were one apartment, which was subdivided in the Late Ia Phase by a thin wall with a doorway, 3 ft. 4 ins. wide. The still larger room 14, 16, 18, which was nearly 17 ft. long, was also subdivided later.

House VI, whose southern wall was the only one based on earlier masonry, was entered from the east through a doorway, 3 ft. 8 ins. wide, whose sill was 3·7 ft. below datum. This door was at first 4 ft. 6 ins. wide, but was subsequently narrowed in the Late Ib Phase by building additional masonry up against its southern jamb. Rooms 32, 33, 34 and 35 appear to have been originally one large apartment, which was subdivided by thin partition walls in the Late Ib Phase for their door-sills average 4·3 ft. below datum.

Rooms 31 and 37 were also originally a single room which in the Late Ib Phase was partially subdivided by a thin wall now standing 1 ft. 3 ins. high.[2] Along the eastern side of this partition wall a channel, 8 ins. wide by 1 ft. 3 ins. deep, sloped towards the north to the drain in the alley along the north of the house. Since the bed of this channel lay some 7·5 ft. below datum and it must have been underground when in use, it, also, dates from the Late Ib Phase. The north-western corner of room 37 was twice partitioned off to make one room within another, and in the inner one a large pottery jar was found which probably served for storing valuables (Pl. LVIII, 14). From the western wall of room 79 of this same house, a short length of drain leads to a soak-pit, 2 ft. 4 ins. by 2 ft. in size and 3 ft. 5 ins. deep.[3] The door-sills of this house show a remarkable uniformity in level, averaging 4·3 ft. below datum, and they date it to the Late Ib Phase.

The ground-plan of House VII which was chiefly of Late II date was remarkably clear with most of the doorways well preserved. But the broken pavement at the level − 4·8 ft. at the northern end of the corridor-like room 18, which measured 34 ft. by 8 ft., was of later date. A small aperture in the wall served to drain this pavement into the lane to the north. In the thickness of the house wall there was also a chute which originally carried off water from the enclosed part of the pavement, which may have been a privy, and also from an upper storey or the roof of the house. The doorway in the south-eastern corner of chamber 51, whose sill was raised to the level 4·4 ft. in the Late Ib Phase, was partially blocked up and converted into a niche in Late Ia times.

Originally this house was smaller than indicated in the plan; it did not include rooms 15, 49 and 50. These were added by taking over the ancient lane along the southern side, which was open as late as the Intermediate I Phase and possibly even in the Late III Phase. Part also of House III of Block 10 to the south of these rooms appears to have been acquired by the owner of House VII, perhaps to accommodate the families of his sons or dependents; or, it may be, this was a sacred edifice as suggested by the objects found in it and discussed earlier in this chapter. The only entrance to this building from the outside

[1] The bottom of its channel was − 10·9 ft. and dates it to the Late II Phase.

[2] Its foundation level is 6·5 ft. below datum.

[3] The top of this pit being 7·3 ft. below datum, it was probably of Late II date.

appears to have been the doorway into room 20 from the ancient but disused lane 21, 22 and 23.[1]

Block 9A (*Pls. XIX–XXI; XLV, f; XLVI, b*).

Late III Phase (*Pl. XIX*). *Average level: −9·9 ft.*—The northern portion of House V of Block 9 seems at this period to have been incorporated into the southern end of Block 9A, being now separated by an alley-way from the rest of the block to which it originally belonged.

Owing to the damage done to the outer walls of this new House V, and particularly the southern wall, it is not yet certain from which side it was entered. There was, however, a blocked-up doorway, 3 ft. 4 ins. wide, in its northern wall (66) from the narrow passage beyond, which averaged only 2 ft. 3 ins. in width. A short staircase, 2 ft. 10 ins. wide, with two treads remaining, each 9 ins. broad by 11 ins. high, perhaps led to the roof of the house as the walls seemed too thin to support an upper storey.[2]

Building VIII of this block now appears as a large, open court. That there were once partition walls is demonstrable from the marks on the walls still standing where those removed were once bonded in, but the amount of destruction and brick-robbing that occurred at the commencement of the Late II Phase makes it quite impossible to determine the arrangement and purpose of the building of the previous phase. The only clue to its use is provided by a set of six parallel brick channels in the northern half of room 64 (Pl. XLV, f). These channels are 5 ft. 2 ins. long and they average 6·5 ins. wide and 10 ins. deep. Though no ashes were found, nor do the bricks show any signs of smoke, it is possible, none the less, that cooking-pots were placed over wood fires in the channels, just as in modern Sindh and even in our own kitchen. If this were so, the cooking must have been on rather a large scale, certainly for more persons than one family. This, together with the large courtyard and the position of this building suggests that it was a khan or some other public structure. The outlets for smoke were, of course, filled up when the whole place was rebuilt in the Late II Phase.

Of the three doorways from the lane to the east, each 3 ft. 10 ins. wide, with their sills at the level − 10·3 ft., only two seem to have been used, the most northerly of them having been bricked up soon after being made.

Late II and I (b and a) Phases (*Pl. XX*). *Average levels: − 7 ft., − 5 ft., and − 3·2 to + 0·8 ft.*—The walls of House V in this period are well defined but so much weathered that the outer entrance could not be traced. The sill-levels of the two interior doorways averaged −4·2 ft. and the house can in consequence be assigned to the Late Ib Phase, and perhaps even before that. The well-defined lane that separates this house from House VI of Block 9 to the south is 5 ft. 3 ins. wide, and down its centre ran a well-built drain whose channel was 7·35 ins. wide and 9·5 ins. deep. This drain slopes towards the west with a drop of 11 ins. in about 33 ft.; the base of its channel at the eastern end and close to where it receives water from House VI is 8·4 ft. below datum.

At the rebuilding of the city in the Late II Phase, the eastern wall of the block had either already fallen or was pulled down along its entire length to within a few inches of the three door-sills. And, as on the opposite side of the

[1] Its sill was some 5·1 ft. below datum, *i.e.*, of Late Ib date.

[2] The lowest step was at the level — 11·4 ft.

lane, the wall of the new building was set back, though this time parallel with the original one. The foundations of the new wall rest on mud-brick filling at the average level of 6·3 ft. below datum, and its masonry is poor and was evidently hurriedly laid.

The raising of this wall in the Late Ib Phase,[1] was so carefully done as to be hardly noticeable (Pl. XLVI, b), but in the next phase a well-defined ledge, 16 ins. wide at the south and narrowing to 9 ins. wide at the north, was left along its western side.[2]

Though the effect of the shifting of this wall was to widen the lane, which in places is over 7 ft. in width, the ruined wall may have served as a basis for market stalls, for whose advantage, perhaps, the lane was now opened to give direct access from Central Street. At this time also a drain was constructed with its channel, which was 5 ins. wide by 12 ins. deep, covered by bricks set on edge, of which some remained at its northern end.

As is seen in the plan (Pl. XX), this block was converted into two houses in the Late II Phase. But though many of the doors from room to room are well preserved, we have been unable to trace with certainty any entrance doorways. House V was probably entered from the lane on which it fronted to the south; the whole of the southern wall has disappeared to below the level of the door-sills and floors. A small house compared with those around, it seems to have been of little importance, though the absence of paved floors may be due to the very prevalent brick-robbing.

Building VIII was very much more commodious, but though its walls still stand high the position of its entrance is not readily apparent. There may possibly have been a doorway in the Late II Phase into the vestibule-like room 55 from Loop Lane on the west of the block; but though its northern jamb is recognisable on the outside, presuming that this doorway did exist, the other jamb appears to have had the brick filling of the Late Ib Phase bonded into it. In this connection, it might be remarked that whereas in the earlier levels no attempt was made, as a rule, to bond the filling of a doorway with the jambs, the latter was often necessary with the inferior masonry of the upper levels, since both door-jambs and filling were liable to settle. House VIII may, however, have been entered through room 56 on the east, but, if so, the doorway was obscured in the same manner by the bonding-in of a later filling.

It was in the Late II Phase also that the Late III door into room 64 was blocked up and another of much the same size, 3 ft. 10 ins. wide, was made above, though not in direct alignment with it: the sill of this later doorway was 8·9 ft. below datum.

The pavement in room 56 was an addition of the Late Ib Phase, as it was only 4·3 ft. below datum. It was bordered by an edging of brick, some 2 ins. high, and the water used to wash it down—it may have been a privy at this period—escaped into the lane outside through a small aperture in the wall. The paving of room 58, to the west, which was only a foot lower and therefore of practically the same date, may have served a similar purpose; indeed it seems possible that Building VIII was really two houses, and in any case the home of more than one family.

[1] From the level 4·9 ft. below datum.

[2] At the level 3·3 ft. below datum.

It will have been noticed that the alignment of this block and of a portion of Block 9 is not the same as that of the other buildings in this area. Unfortunately, the edge of the mound descends steeply to plain-level on the western side of Block 9A and, in consequence, the buildings here have mostly disappeared. At first it was thought that Block 9A was erected on built-up ground during an extension of the city on this side, but it was subsequently found that the further wall of the lane on the western side of the block descends far below Late III level, along part of its length at any rate. An early building with very thick walls—perhaps once outside the city—has been partially excavated beneath the lower slope of the mound on this side (see Pls. XVI–XVIII), and it is possible that when the city was extended at a later period, the new buildings were so aligned as to utilize these substantial earlier walls as foundations. This change of direction necessarily changed the alignment of Central Street, which instead of continuing straight on to the west diverged in a west-north-westerly direction.

Block 10 (*Pls. XVI–XXI ; XXII, 9 ; XXIV, b ; XXXIII, a, c, d ; XL, a, b, c ; XLI, b, c, d, f ; XLIX, f*).

Intermediate III Phase (*Pl. XVI*). *Average level : – 20·4 ft.*—The boundaries of Block 10 are well marked in the Intermediate III as well as the other levels, there being important thoroughfares on the north and south, each with a double bend, left-right, towards its eastern end. To the west the block is defined by the present limit of our excavations, but there is reason to think that a lane or street running north to south will eventually be located here. To the east, a purely arbitrary boundary has been fixed, an imaginary line immediately east of the positions of numbers 11–13 and 28, beyond which is Block 7. Our reason for fixing our arbitrary line here is that in the Late III plan (Pl. XIX) there is a very definite house wall in this position.

With the exception of its north-western corner, practically nothing remains of the Building I of the Intermediate III Phase ; all the rest had been removed by brick-quarriers. The doorless room (3 and 5)—mere foundations—in this corner was 9 ft. 4 ins. long by 6 ft. 6 ins. wide at the level 22·5 ft. below datum.

House II had been similarly demolished in the search for brick, but fortunately its well-chamber and well were practically intact. The remarkably little damaged coping of the well (Pl. XLI, b) is 5·2 ft. below datum, *i.e.*, it had been raised from time to time until the Late Ib Phase, which is clearly seen in at least two places (Pl. XLI, f). Its internal diameter is 4 ft. 3 ins.

The well-room (26, 27) is somewhat irregular in shape and averages 15 ft. 6 ins. long by 4 ft. 8 ins. wide at its northern end, with the well practically in the middle. Only the northern half of the room was paved at this period. It is difficult to estimate how high the coping stood above the pavement, but it would evidently have been difficult to pass from one end of the room to the other, and each end therefore had its own door, 2 ft. wide, in the eastern wall.[1] The paved floor was about 3 ins. above the level of the door-sills.

Outside these two doorways and against the wall between them, a little stairway, 2 ft. wide, whose two remaining treads are each 8 ins. broad and 7 ins. high, presumably led to some structure east or south of it, which has entirely disappeared.

[1] The sills of these doors were 22 ft. below datum.

The photograph (Pl. XLI, b) shows how badly the western wall of this well-room had subsided. This was clearly due to floods and provides strong evidence that the evacuation of the city after the last time this wall was raised was due to this cause.

House III, which measures some 58 ft. by 41 ft. 4 ins.[1] is so complete and full of interest as to be one of the show buildings of the site. In it one can picture the domestic life of the times more vividly than in almost any other house in the ancient city. The main façade of this house is to the west with its chief entrance, which is 3 ft. 11 ins. wide, just round the corner from Fore Lane along the southern side of the house (Pl. XL, a). This lane which narrows slightly towards the west averages 7 ft. 6 ins. wide (Pl. XXXIII, c, d), whereas Long Lane on the northern side of the house is uniformly 4 ft. wide (Pl. XXIV, b). A very narrow space, 1 ft. 6 ins. in width, which separates this house from the one adjoining it on the east was found, and still is, bricked up at both ends to prevent its being used as a passage way (Pl. XL, b).[2] The middle portion of this space between the buildings we cleared of the accumulated débris, but the thinnest of our basket-boys had to be chosen for the work, especially as the lower they penetrated, the narrower the space owing to the batter of the walls.

The entrance of this important house gives upon what appears to be a courtyard (65–67), 33 ft. 11 ins. long by 14 ft. 8 ins.; it would have been difficult to roof so wide a space. From this courtyard the door leads in to the small vestibule-like chamber 59, and thence to the rest of the house (Pl. XXXIII, a). There seems to have been another entrance from the court into room 64, but as it is unusually wide for a doorway (8 ft. 6 ins.) and was, in fact, very carefully bricked up, it may be that it was the original intention to have a doorway here, but that it was decided not to do so before even the house was completed.[3]

A rectangular opening in the northern wall of room 62 communicated with 63. This opening, which seems originally to have measured 1 ft. 3·5 ins. wide by 2 ft. 1 in. high and is 3 ft. 3 ins. above the footing of Intermediate III date, may have served as a hatch through which food was passed; if so, room 62 may have been a kitchen, though no trace of a hearth was found in it. In the following phase, this aperture was raised to bring it into use again and one side was roughly bricked up to turn it into a niche or cupboard in room 62.[4]

The room (1) in the N. E. corner (Pl. XXII, 9) was entirely shut off from the rest of the house and could only be entered by a doorway, 4 ft. 5 ins. wide, from the outside. This room may have been used as a shop; and it is possible that on the death of the owner of the house the latter was divided amongst his relatives.

[1] Owing to the batter of the external walls, it is difficult to give definite measurements as the dimensions vary with the height at which they are taken. Those given are at the level of the main entrance, *i.e.*, 20 ft. below datum. which is practically that of all the interior door-sills.

[2] A very necessary precaution as an agile man could use such a crevice to climb up either building.

[3] This is all very obscure, however, for the southern jamb of the opening has a very pronounced batter, and, moreover, the masonry with which the opening was filled in was very poor.

[4] This niche is not shown in either of the plans to avoid its being confused with a doorway.

It will be noticed that there were no less than four entrances into this building, all at the same level and consequently of the same date, but of these the two from the lane to the south were carefully bricked up, apparently very shortly after they were made. I cannot think that it was intended to use all these doorways at the same time; and we must suppose that if this building was a dwelling-house its owner was for some time undecided about the position of the entrance doorway, and that he only made up his mind at the last moment.[1]

It was at first supposed that the more or less open space to the west of House III was the courtyard of the latter, but further excavation has clearly shown that House IV is an entirely separate building. Still further clearance to the west is required, but there is little hope of finding more than foundations as the edge of the mound is quite close and a great deal of denudation has taken place.

This almost square enclosure 74, 82 is very roughly paved with brick, much of it broken; and there seems no doubt that it was once a courtyard with a well in its north-western corner (Pl. XL, a). Its eastern wall had been entirely removed to the level of the pavement, though, doubtless, deeper excavation will reveal its foundations. It was probably of the same thickness as the ruined northern and southern walls of the court. The pavement which is somewhat undulating averages 21·2 ft. below datum, and being mostly made of broken bricks was probably saved from the brick-robbers' depredations thereby. The well in the corner, 3 ft. 4 ins. in diameter inside,[2] is enclosed by a clumsy mass of masonry which was built round it when the steening of the well was raised at a later period. This masonry now stands some 6 ft. above pavement level.

A bricked-up chute, 1 ft. 10·5 ins. wide, is seen on the outside of the northern wall of the well-chamber; and judging from the height which the wall now stands this chute was probably used and re-used for a considerable period of time.

The doorway from the court 74, 82 to the rooms that once existed to the west is 4 ft. 3 ins. wide. It was originally 5 ft. 4 ins. in width and appears to have been narrowed almost immediately, for the added brickwork is bonded to a height of twelve courses above the sill which is 21·4 ft. below datum, *i.e.*, to the level of the niches in the adjacent wall. In the Intermediate II Phase this doorway was re-used at the narrower width.

There are three very curious apertures in the southern wall of the court and the room beyond, the one in the courtyard being 3 ft. 11 ins. wide and the other two 3 ft. 8 ins. wide (Pl. XL, c). The floors of these apertures average 18·7 ft. below datum and they were presumably made at the latter end of the Intermediate III Phase. The jambs of the two farthest west are slightly recessed on the southern side. They were bricked up with a thin layer of masonry and used as niches in the Intermediate II Phase.

At the western limit of our excavations just beyond this very much dilapidated house, there is a mass of débris, several feet high, surmounted by a lofty wall of a later period. In places this débris was evidently plastered over, for one or two patches have been preserved by the fire that also baked part of the plaster on the courtyard walls.[3] It seems probable that at some later date both the court

[1] I am told that extra doorways are sometimes made in Sindh to-day in the hope that the adjacent properties can eventually be bought in. I should imagine, however, that in the case of House III, it would have been difficult to appropriate the lanes that separated it from the buildings around.

[2] Its damaged top is now 8·4 ft. below datum.

[3] These patches can just be seen on the right hand side of Pl. XL, c.

and the dilapidated rooms to the west were cleared in the search for bricks, and that the hole that was made was roughly plastered for re-use as a dug-out dwelling at the time of, or shortly after, the brick-robbing took place. It should be mentioned here that the two thin walls south and east of the masonry round the well, though made of burnt brick, were covered with mud-plaster on both faces. It is of interest to note that the white ant was just as much a scourge in those days as it is now ; for this plaster was furrowed with the tunnels of the insect before it was burned.

Intermediate II Phase (*Pl. XVII*). *Average level: – 15·9 ft.*—The western portion of House I in this period is fairly complete, but exactly how far it extended to the east is uncertain and our restoration must be regarded as purely conjectural. There is even a possibility that at this time the house was linked up with the building that existed at the western end of Block 7, for the remains of the walls of both were in alignment.

A nearly square patch of pavement (2), 5 ft. 1 in., E.-W., by 4 ft. 5 ins., N.-S., in the south-western corner of this house was enclosed on the north and east by a wall, one brick in thickness, which had been destroyed down to the brick edging, 5 ins. high, that bordered the pavement on all four sides.[1] The water escaped through an aperture, 3·75 ins. wide, in the southern wall which was originally larger, but was partially blocked up with very rough masonry (Pl. XLI, c). The water-chute, 1 ft. 11·5 ins. wide, beneath this aperture was of unusual workmanship and sloped at about the angle 45°. This chute seems originally to have drained an upper storey or the roof of the building from the foot of a vertical channel in the thickness of the wall, an arrangement that was quite usual at Mohenjo-daro.

This small ablution place overlay another and larger extent of paving with a layer of 7·5 ins. of débris between the two. The lower pavement seems to have covered the whole of room 4, but only the western part of it remained, and undulated badly owing to subsidences here and there.[2] A portion of this pavement is seen just beyond the upper pavement in Pl. XLI, c, and it was drained by the horizontal outfall still to be seen on the right of the chute in the photograph. The E.-W. measurement of room 4 we shall never know ; its width N.-S. was 19 ft. and there were two or more chambers (3, 5, 8) along its northern side, the most complete of which was entered by a doorway, 3 ft. 4 ins. wide, whose sill was 17·7 ft. below datum.

On the eastern side of the ablution pavement (2), three treads remained of a little flight of steps, 2 ft. 8 ins. wide, each 7·5 ins. broad by 8 ins. high. The level of the lowest step was 9·5 ins. above the pavement and this stairway was probably a rather later addition whose purpose is somewhat obscure. Possibly the floor was raised later in the same period ; for though we found no pavement above the one illustrated, it might have been removed at the time that so much damage was done to the rest of the house. There are indications that the small badly destroyed room (8) also was paved at the level 17·2 ft. below datum.

House II was better preserved except for its south-eastern corner ; its plan, therefore, is more certain. The apparent entrance from the south could obviously not have existed ; it is in reality a large gap in the wall. The little ablution pavement or privy against the western side of room 21, which was 4 ft. 3 ins. by 3 ft. in

[1] The level of this pavement was 16·7 ft. below datum.

[2] Its average level was 17·8 ft. below datum.

area, was edged all round with brick in the usual way and drained into the street through an aperture in the western wall of the house.[1]

The foundation of the northern wall of room 24 descends as low as 18·3 ft. below datum and was constructed of alternate courses of burnt and unburnt bricks which all appear as headers on either face of the wall. The burnt brick footing above this foundation was 15·5 ft. below datum and marks the level of a pavement which had been removed.

The well-room (26) in this house was about the same size as in the previous period, but was now entered from the west (Pl. XLI, f). The southern jamb of the doorway on this side is quite clear, but its width could not be determined owing to the bad condition of the wall. It is also uncertain whether or not there was a second doorway in this wall. The pavement seen in both plan and photograph was 16 ft. below datum and was drained through a small hole in the western wall of the room.

There was no difficulty whatever in determining the plan of the House III of this period which was in an excellent state of preservation (Pl. XL, a, b). At this level the space between it and House I to the east was 1 ft. 7 ins. As before, each end of this space was roughly bricked up to prevent any passage through it.

On comparing the plan of this house at this period with its plan during the Intermediate III Phase, it will be seen that very little alteration had been made. The north-western corner of the court (65, 67) was entirely shut off, but for what purpose it is difficult to say as no doorway into this enclosure can be detected from either inside or out. Despite the depth to which the foundations of the partition walls descend, – 17·9 ft., I think the actual explanation is that this space was not enclosed until the Intermediate I Phase; then there were two doorways, as will be seen in Pl. XVIII, into the small enclosure, which was probably roofed over and used as quarters for a watchman to guard the house which still had lanes on three sides of it.

Another, rather smaller enclosure (64) was partitioned off in the north-western corner of the large apartment 57, 63. This little room had a doorway, 3 ft. 4 ins. wide, and very possibly served as a kitchen, since a quantity of wood-ash was found on its unpaved floor. Two little niches in its walls, at the level – 13·9 ft., may have served as cupboards. In the subsequent phase these niches were blocked up when the walls were raised.

Room 1 was still entirely cut off from the rest of the house, and was probably a little lock-up shop, as before suggested.

Of House IV little was left save the well with the masonry round it, and part of the northern and southern walls. The three openings in the southern wall were now bricked up on the southern side and converted into open niches or cupboards (Pl. XL, c). At the same time the sill of the doorway between the courtyard and the house was raised to 16·5 ft. below datum.

The very curious mass of masonry round the well was raised, broken as well as whole bricks being used in its construction (Pls. XXIV, b; XL, a). Its dimensions were some 11 ft. by 10 ft. 3 ins. and it was bonded into the house-wall to the west of it. The level to which this masonry reached was 15·2 ft. below datum, and the surface of a broken pavement above it was 2·5 ins. higher. The purpose of this mass of masonry presents a problem; possibly it was built with the intention of preventing the infiltration of sewage into the well.

[1] Level – 16·3 ft.

The street to the south of this house is seen in Pl. XXXIII, c, but in it we found no traces of a drain at this level. On the opposite side of the block, however, there was a well-constructed street drain which could be traced all the way from Low Lane to the western limit of House III in Block 10, and which almost certainly passed within a few feet of the well, receiving drainage from the chute in the northern wall of House IV already described.[1]

Intermediate I Phase (*Pl. XVIII*). *Average level: – 13 ft.*—Little remained of Houses I and II except fragmentary outer walls and the well in the latter house. Only the northern portion of the well-room survived, and it seems to have been entered from the east once more, as in the Intermediate III Phase. There was no trace left of a pavement.

The House III of this sub-period is decidedly puzzling. There were fifteen doors in the outer walls, eight of them opening into the court; all but two of them were blocked up when the walls of the house were raised in the following phase. The levels of the door-sills averaged – 12·7 ft.; the highest being at – 12·5 ft. and the lowest – 13·2 ft. below datum. A very peculiar feature is that three of these apparent doorways opened against the ends of partition walls that had been carried up from those of the previous period. At the eastern end of the house, of three doorways that opened into the narrow crevice between Houses I and III and can never really have functioned as doors, two had the ends of walls abutting against them.

Though the western end of the house must have presented an arcaded appearance, the interior of the building was practically the same as in the previous period except that from the court 67 a second small room (65) was entirely shut off. This room, like the adjacent room 66, was entered only from the outside.

The ablution pavement in the court was incomplete on its southern side, but on the other three sides a low wall, evidently intended to prevent water from damaging the bases of the adjacent walls or flowing over the floor of the court still stood about 1 ft. above its surface. It is unusual to find an ablution pavement in so prominent a position; and I would suggest that visitors to this building perhaps washed their feet here before entering the inner rooms. A brick-lined pit, 4 ft. by 2 ft. 5 ins. in size, in the unpaved floor of the court may have been a bin, as it had no connection with the ablution pavement; or it may have served to drain the rest of the floor which was presumably open to the sky.

But little had survived of House IV, save a portion of its outer walls. Even the well had no surrounding structures left and was apparently derelict; though that some kind of building existed here during this period is evident from the fragmentary remains of walls.

The little staircases in the lanes along the southern side of this house and also running southward from it rested on rubble. They evidently gave access to the roof or upper storey of a house that was built right over the former lanes, an excellent example of encroachment. The flight of steps in Fore Lane was 3 ft. 8 ins. wide with treads 11 ins. broad and 8 ins. high, and it stood well away from the southern wall of the lane.[2]

[1] The bed of this drain at its western end was 19·1 ft. below datum. The chute was found blocked up.

[2] Its lowest step was 12·7 ft. below datum.

Late III Phase (*Pl. XIX*). *Average level: – 9·9 ft.*—A few walls only remained of House I, and it will be noticed that Fore Lane had been closed in by continuing the east wall of House I right across it to the northern wall of Block I on the opposite side.

Of House II nothing whatever was left save the well. The brick-robbing which took place on the return of the population after the evacuation of the city between this period and the next was particularly thorough here.

For some unknown reason, House III seems to have been spared; it still preserved its outward form and the arrangement of its rooms followed the same plan as in the three previous occupations. The house was entered as throughout the Intermediate Period at the S. W. corner. All the other unexplained and apparently unnecessary doorways had been wholly or partially bricked up, and in the latter case evidently served as niches or cupboards. Three very curious holes in the eastern wall of room 66, each some 7·5 ins. high by 8 ins. wide by 1 ft. 11 ins. deep, present a problem.[1] What was their purpose, unless they held the supports of a loom or other mechanical apparatus?

Of House IV again, practically nothing was found except the well and some remains of the outer walls. A small square pavement at the level – 9·9 ft. had unaccountably escaped the general destruction, and its original edging still remained along two of its sides.

Late II and I (*b and a*) *Phases* (*Pl. XX*). *Average levels: – 7 ft., – 5 ft., and – 3·2 to + 0·8 ft.*—During these phases the block comprised four large and important houses whose walls were for the most part fairly well built and walls aligned on those of earlier times. The original ground-plans were, however, considerably altered. As necessitated by the increased population of this time, the houses were partitioned into smaller rooms, parts were incorporated into neighbouring houses; even the western end of Fore Lane was itself built over in the need for more accommodation, an interesting piece of evidence of the decline of civic authority.

House I, which had grown considerably in size by encroachment on Fore Lane, was entered from the north by a doorway, 3 ft. 4 ins. wide, whose well preserved jambs still stood 1 ft. 4 ins. above the sill.[2] The small apartment (5) partitioned off in the north-western corner of the courtyard (8) was not the same shape as before, and was now entered from the east instead of south. In room 13 at the other side of the court there was a large square bin (12) whose walls still stood 1 ft. 6 ins. high. Room 11 at first communicated with room 10 by a doorway, 4 ft. 7 ins. wide, but this was bricked up in the Late Ib Period.[3] Room 6, 7, which was 17 ft. 10 ins., N.-S., by 17 ft. 4 ins., E.-W., was apparently roofed over despite its size, for a strip of thin walling was placed against the wall of the building to the south of the former lane obviously to support roof-beams which were not quite long enough to rest securely on the original wall. Possibly the wall behind also needed refacing.

The well-room of House II shows several interesting features. The steening of the well had been raised so that its coping, which is grooved by the ropes used to pull up the water-jars (Pl. XLIX, f), is only 5 ft. below datum. The wedge-shaped bricks used to build the coping had been cut from ordinary moulded

[1] The bases of these holes were 7·4 ft. below datum.

[2] The level of this door-sill was 4·8 ft. below datum.

[3] The sill was 6·9 ft. below datum.

bricks, 10·73 ins. long by 5·25 ins. broad ; and it is noteworthy that they were laid on their edges, the broad faces having been trimmed away and not the sides. A neatly laid pavement surrounded the well, but it had collapsed at some later date through subsidence, as is seen in the photograph. Deep hollows here and there in the pavement where the water-jars stood were probably not entirely due to wear ; most probably they had first been roughly chipped out and in course of time had worn quite smooth. The bricks of this pavement, 9·5×5×2·25 ins. in size, were laid on edge in the N.-S. direction ; and around the walls, and also the coping of the well, was a protective wainscot of bricks on edge that stood some 4·75 ins. above the pavement level to prevent infiltration of water from it.

The spilt water drained away to the south-eastern corner of the room, whence it ran out through an opening, 6·5 ins. wide by 8·5 ins. high, to a roughly circular soak-pit outside, 5 ft. in diameter. The walls of this well-chamber, and of the soak-pit also, were very roughly built of bricks 11·5×5·5×2·75 ins. in size. There was also a niche, 2 ft. 2 ins. wide and 8 ins. deep, in the eastern wall of the room a few inches above pavement level to hold smaller water-jars. Judging from the amount of wear of both pavement and coping, this well was in constant use, perhaps by the potters who used the adjacent kilns, as well as for ordinary domestic purposes.

The entrance door from the courtyard to the east was 3 ft. 9 ins. wide.[1] A slightly narrower door gave access to the well-room from the rest of the house. This house, one of no great size or importance, was possibly occupied by the guardian of the well which was presumably public property.

Rooms 21 and 22 and the narrow entry 23 which were built over a lane still in use in the Intermediate I Phase appear to have communicated with House I, Block 10, on the one side and House VII of Block 9 on the other. Indeed, the owner of the latter house may have acquired the former by purchase and decided to turn the lane between to more profitable use.

The fortunes of House III also changed most remarkably with the re-occupation of the city at the beginning of the Late II Phase. The large forecourt of House IV was built over and in the process the little lane that had existed between it and the western façade of House III was swallowed up in the new building. So also was a part of Fore Lane adjacent—yet another proof of the complete dissolution of all civic authority with the evacuation of the city at the end of the Late III Phase.

House III appears to have been reoccupied and rebuilt slightly later than House IV, but, unable to enter it from the west as throughout its earlier history, its occupants had of necessity to make other doorways elsewhere. The old-time western wall of House I apparently no longer existed, and a new doorway was made in the raised eastern wall of House III, whose sill was 6·8 ft. below datum. The former lock-up shop (1) was re-incorporated in the house. Probably at the same time, the portion of Fore Lane beside House III was added to that property and built over in the manner of that time.

With the rebuilding of House I, the new entrance to House III would have been barred unless the two houses were under common ownership. And here it should be remembered that House I no longer had a separate western wall but shared a common party-wall with House III, that was built on the old wall of the latter as foundation.

[1] Its sill was — 5·3 ft.

In the Late Ib Phase, another doorway with its sill 4·9 ft. below datum was made from House III—it was, in fact, immediately above the door of the former lock-up shop—into room 15 of House VII, Block 9. This latter may still have been a lane, though it is more probable that it had already been built over. Houses I and III may, indeed, have been acquired by the owner of House VII, or *vice versa.* It has already been noticed that at this time groups of two or three houses seem to have been thrown into one complex of buildings, noticeably in Blocks 7 and 8. The same thing may have taken place here, and it seems reasonable to surmise that the people who reoccupied the city after it had been deserted for some considerable period came in groups of families who lived together for their mutual protection and shared a common well. But the destruction of walls subsequent to the final abandonment of the city and the consequent disappearance of the doorways makes it impossible to be dogmatic about the histories of the various houses at this time and their relationships with one another.

There is reason to think that there was a door in the northern wall of room 56 of House III, and another in the southern wall of the same chamber or in the recess 57, giving access to the court 67 through the passage 55, 59. Along all four sides of the court, a ledge at the level – 7·6 ft. indicates the difference in thickness between the new-built walls and the thicker earlier walls that now served as foundations. The fragment of a pavement along the eastern side of the court 67 lay 8·1 ft. below datum. The mud-plastered walls of the small room 63 show evidence of having been burnt at some date before the room was shut off from the rest of the house.

The large new House IV was apparently entered from the south by a doorway into room 84, the apparent doorway on the northern side of the house being in reality a break in the wall. The central space (81), which measured 20 ft. 6 ins. by 15 ft. 3 ins., was probably the new courtyard in place of the one built over. The eastern jamb of the doorway leading from it into room 83 had a rebate, 7×9 ins., a very unusual feature in the doorways of Mohenjo-daro. The sills of all the doors from the courtyard were some 6·9 ft. below datum and, therefore, of Late II date.

In the Ib Phase, room 78 served as a bathroom. Its well-laid pavement of cut bricks, 10×5×2 ins. in size, sloped towards the south-eastern corner, where the water ran out through an aperture in the wall, 1 ft. 7 ins. wide.[1]

The very long chamber 74, 87, 88 was 45 ft. 3 ins. in length by 7 ft. 9 ins. wide. In it the well now reached to the level 8·4 ft. below datum with a coping built of wedge-shaped bricks.[2] Round it there was a neatly laid pavement whose level, – 8·6 ft., dates it to the Late II Phase.

Outside the corridor in which was the well were the remains of a sediment-pit and drain in the south-western corner of Block 12 ; and the direction of the channel suggests that it received the drainage of the well-pavement through an aperture in the part of the wall that had been destroyed. This pit, whose floor was paved, was some 2 ft. 8 ins. square by 4 ft. 7 ins. deep. Its sides were only one brick thick.[3]

[1] The highest part of the pavement was 5·1 ft. below datum.

[2] Its internal diameter was 2 ft. 9 ins.

[3] The top of the pit was 9·4 ft. below datum.

In the passage 72, two treads remained of a stairway, 2 ft. 10 ins. wide, each 7 ins. broad and 10 ins. high. The level of the lowest step was −7 ft. which dates this staircase to the Late II Phase.

Block 10A (*Pls. XVI–XVIII; XXI; XXXII, a–d; XLI, g*).

Intermediate III Phase (*Pl. XVI*). *Average level: – 20·4 ft.*—Long Lane between Block 10A and 11 is 7 ft. 4 ins. wide at its eastern end, but narrows to 5 ft. 1 in. wide towards the west where it widens again somewhat irregularly. Though a doorway, 5 ft. 11 ins. wide, on the northern side of the street gave entrance to the great khan-like building formerly described as possibly a temple,[1] no trace could be found of an entrance to the large and important Block 10A on the southern side of Long Lane. The importance of this block is, however, evident from the thickness of the few remaining walls. The drain that runs down the middle of the lane averages 8 ins. wide and 12 ins. deep, and must have served both buildings. At the furthest point west to which we have traced it the bed of its channel is 26·5 ft. below datum. At the eastern end at the junction of its two tributaries, it is 1 ft. higher.

Save for a group of burials there is at present little of interest in Block 10A which needs further clearance; nor can we at this stage explain the two pairs of holes, averaging 1 ft. square, through the opposite walls of room 5. They are too low to be beam-holes, unless they were made for the roof-beams of the preceding phase and were used later for some other purpose; but this is hardly likely, for the bases of the holes are only 18 ins. above a footing at the level 21 ft. below datum.

The position of a group of nine skeletons found in January, 1929, is marked by a star. These remains were very fragile and badly decayed, and Mr. C. R. Roy, a student of the Anthropological Department of the Calcutta University, was entrusted with the difficult task of removing the bones after doing all that was possible to preserve them and making records of their positions. I should like to mention here that Mr. Roy carried out this very delicate and responsible task with great skill and judgment. A report on the anthropological study of these bones by Dr. Guha, Anthropologist to the Zoological Survey of India, will be found in Chapter XVIII at the end of this book.

These skeletons which lay in strangely contorted attitudes and crowded together were unearthed at levels ranging from 18·8 ft. to 23·1 ft. below datum and at an average distance of 5·9 ft. below the surface of the mound, which had been much eroded by water in this region.

Unfortunately, we are still somewhat uncertain about the date of these burials, the only evidence we have being afforded by two objects associated with one of the skeletons (No. 8). The fine ivory comb seen in Pl. C, 15, was, in fact, found quite close to a skull and was probably worn in the hair. This type of comb is, however, quite new to us, the three combs previously found at Mohenjo-daro being a different pattern. On the right wrist of the same skeleton was found a thick copper bangle (Pl. CXXXIX, 25; CXLII, 14) of a pattern with which we are now well acquainted at Mohenjo-daro; and though the evidence it affords is by no means conclusive, I am inclined to think that this bracelet dates these burials to the period of the occupation of the city.

[1] Marshall. *Mohenjo-daro and the Indus Civilization*, pp. 251-2.

I do not think that the alabaster stand (Pl. CX, 43) found just below skull 6 could have had anything to do with the burials; it was more probably already lying in the ground, as also were the round barrel-shaped agate bead (Pl. CXXXIX, 69) which was found near the pelvis of burial 4 and the large faience bead with a fluted edge (Pl. CXI, 11, and Pl. CXXXIX, 45) just north of skulls 4 and 6. The last mentioned bead is, moreover, a new type.

There were two elephant tusks in the burial pit,[1] of which the better preserved measured 3 ft. 9·5 ins. long and 6 ins. in diameter at its broadest end. On this tusk lay skulls 3 and 5, and also some of the bones of body 6; and it seems certain that all were buried at the same time. The other tusk which was not so well preserved lay a little to the south with the arm-bones of burial 7 just below its broader end. These elephant tusks like the human remains show signs of very great age and are badly decayed and split (Pls. XXXII, a; CXI, 72).

It is difficult to say how these people met their death. Mr. Roy has thought that he has detected charring of the bones of bodies 2 and 5;[2] and from a mark on one of the bones he suspects that one of the legs of body 6 was severed. I would suggest that these were the remains of a family who tried to escape from the city with their belongings at the time of a raid but were stopped and slaughtered by the raiders.[3] One or more of the family may have been ivory-workers, and only the tusks for which the raiders had no use were not taken as loot. The bodies were thrown pell-mell into a hurriedly made pit; if they had been left exposed, the bones would have been scattered by carrion-eating birds and beasts. This theory that the city was raided in the last period of its existence is corroborated by the peculiar circumstances of the deaths on a staircase in Block 8A (Pl. XLIII, c), an account of which is given on p. 94.

It is quite possible that the tragedy of this burial-pit took place in the Late Ia Phase, as suggested, despite the low level at which the skeletons were found. There was a mass of broken masonry of the Intermediate III Phase just below them, and the victims could not, therefore, have been slain at an earlier date than that. Indeed, from other evidence it seems that the ground in which they lay had probably lain waste from the Late III Phase onwards.

No. 1 (DK 7411A). Skull of child badly damaged and minus part of the lower jaw. The left humerus and a few phalanges only remained intact.

No. 2 (DK 7411B). Skull, possibly of adult male; in fragments and lying on left side, facing east. Traces of calcination. No other bones could be found.

No. 3 (DK 7411C). Skull of child; in fragments, resting on elephant's tusk.

No. 4 (DK 7411D). Skull of male; on right side, facing west. Skeleton lay on its back; very badly decayed. Agate bead close to pelvis.

No. 5 (DK 7411E). Skull in fragments, lying on a humerus which in turn rested on the better preserved elephant's tusk. Both skull and long bone showed signs of charring.

No. 6 (DK 7411F). (Pl. XXXII, a). Skull of male; on right side facing west. Nearly the whole skeleton lay on its chest intact; only portions of the left tibia, fibula and foot were missing. A portion of the broader end of the tusk had penetrated the lower jaw.

[1] For convenience' sake the burial-place is termed a pit, but it had no defined walls nor even showed traces of having been dug.

[2] Substantiated by Dr. Guha; see Chap. XVIII.

[3] The proximity of these bodies to an exit from the city is in itself suggestive.

No. 7 (DK 7411G). (Pl. XXXII, b, which was taken after the removal of the tusk). Skull of a child on left side, facing south-east. Skeleton lay on its back with the arms crossed and the legs widely extended. The badly decayed tusk lay across this body.

No. 8 (DK 7773). Skull and skeleton of child, possibly a girl; lying on the right side, facing west. Copper bangle on right wrist and a comb not far from, and north of the head.

No. 9 (DK 7829A). Skull of child; detached from body as though it had been decapitated; lying on right side, facing east. Skeleton on its back with crossed legs.

Intermediate II Phase (Pl. XVII). Average level: – 15·9 ft.—Owing to its position on the edge of the mound, Block 10A was so denuded as hardly to appear in the Intermediate II Phase. The walls that are shown in the plan of this level are really the tops of masonry of Intermediate III date. The somewhat meagre remains of this block are seen in the foreground of Pl. XLI, g.

Intermediate I Phase (Pl. XVIII). Average level: – 13 ft.—The only remains from the Intermediate I Phase are a few thin, but high walls at its western end which are seen on the right in Pl. XLI, g. One doorway (Ho. I, 2) alone remained, 3 ft. 8 ins. wide with its sill 13·6 ft. below datum. The position of this block on the edge of the mound had not conduced to the preservation of its buildings; no structures of Late date had survived.

Block 11 *(Pls. XVI–XXI; XXXI, b; XXXVIII, b).*

Intermediate III Phase (Pl. XVI). Average level: – 20·4 ft.—This irregularly shaped building is bounded by lanes on all but the western side. It consists of the very large building around an open court that was excavated by Mr. Dikshit, and of which an account has already been given.[1] The later walls have mostly been removed in the hope that thereby an intelligible plan of the buildings below could be made, but the remains of the rooms of earlier date are with few exceptions doorless and, indeed, are mere foundations.

Of the entrance to this building during the Intermediate III Phase, we are, however, certain. It was on its southern side close to the south-eastern corner of the building. This doorway is 5 ft. 11 ins. wide with its sill 22·4 ft. below datum, and it was in use until the beginning of the Intermediate I Phase. (Pl. XVIII), its sill being raised as required but without any alteration to its width; but after that time it was no longer needed and it was blocked up by a wall only one brick thick. On entering room 25 a very badly weathered flight of steps, 7 ft. 4 ins. wide, is seen on the left. These stairs seem to have been built in the Intermediate III Phase and re-used in Intermediate II days also. The lowest step is 21·2 ft. below datum and the top of the stairway, as far as we can tell, is some 8 ft. higher. The treads are singularly shallow for a stairway in Mohenjo-daro; they average 3 ins. high and 6 ins. broad. The pavement at the western end of room 26 is 19·3 ft. below datum and is constructed of bricks, 11·12×5·75×2·5 ins. in size, laid on edge.

At this period a doorway, 3 ft. 8 ins. wide, led into room 27, but there was no means of communication with the rooms beyond. The imposing dimensions of the entrance and of the stairway to the upper floor of this building suggest

[1] *Mohenjo-daro and the Indus Civilization*, vol. I, p. 251-2; pl. LXIV.

that it was a public building of some kind. The ground-floor rooms 26 and 27 might well be the residence of a door-keeper.

Rooms 30 and 31 were paved at the level 15·6 ft. below datum, but the positions of the doorways leading into them could not be determined as the walls had been entirely removed. There is a possible entrance into the large apartment or court 38–41 from the west, for the free northern end of this wall is smooth and might well be a door-jamb. The corresponding jamb is, however, missing. There is, moreover, no trace of a door-sill, but its estimated level would have been about 15·9 ft. below datum, *i.e.*, Intermediate II date.

The well-room 35 was not cleared down to the Intermediate III level in order to avoid destroying a pavement and stairway of later date. The surplus water appears to have been carried off from this room by a very fine water-chute, 1 ft. 3·5 ins. wide, slightly to the west of it (Pl. XXXVIII, b). This chute, which at this period communicated directly with the drain in the street on the south, which is 25·1 ft. below datum, seems to have been kept in use by being raised from time to time until the Late III Phase. A similar chute set in a blocked-up doorway rather further west has already been mentioned ; it seems to have drained the pavement that probably existed around another well beside the great open court of the building.

A blocked-up doorway, 2 ft. 5 ins. wide, of Intermediate III or II date is to be seen in the southern wall of the well-room 35. This door is still partly hidden by débris inside, but on the street side of the wall which has been entirely cleared there is no trace of it, possibly owing to the wall having been refaced.

In the already published descriptions of this building, it has been suggested that it may have been a temple. The excavation of the eastern end of it, however, and further study of its surroundings and position make it much more likely that it was a great khan or hostel for the following reasons :—

(1) It lies on the western margin of the DK mound between two lanes that, carried straight on in the same alignment, would have led to what appear from the small amount of work so far done upon them to have been gateways in a city wall.

(2) Between this apparent khan and the city wall was a widely open space that could have served for an open-air market, as camping ground for those caravans that could not obtain accommodation in the khan, or even for growing food, as is said to have been done within the walls of Babylon.

(3) Whoever entered the khan from the south-east went straight up to first-floor rooms ; only a door-keeper seems to have lived on the ground-floor. This would be quite in accord with the customary arrangement of such buildings throughout the east to-day, where man occupies the first-floor rooms, often reached by a gallery round a courtyard, and his beast is lodged below.

(4) The presence of three wells in this building suggests that an unusual supply of water was needed ; far more than would have been required for the ablutions of worshippers in a temple.

Intermediate II Phase (Pl. XVII). Average level: – 15·9 ft.—The east wing (III) of the khan underwent considerable alterations in the Intermediate II Phase and the massive new walls departed in places from the alignment of the walls beneath. Indeed, so imposing were some of these new walls, that I hesitated to remove them, and certain details of the earlier building remain

obscure in consequence. There was a flight of steps, 2 ft. 9 ins. wide, with five treads, 8·5 ins. broad and 10 ins. high, on the eastern side of the well-room (35). The lowest tread was 17·8 ft. below datum. It seems likely—especially as no pavement of this date was found in the well-room—that this little stairway was made in order to re-utilize the room of the preceding period instead of taking up and raising its floor.

The staircase west of room 25 has already been mentioned. It too seems to have been re-used in the succeeding phase and, in consequence, its upper portion which still stands to the level 13·4 ft. below datum is included in the plan of the Intermediate II Phase. The doorway into this room is seen in Pl. XXXI, b.

The oblique wall[1] between chambers 27 and 34 is difficult to understand. Its foundations are below the level to which we have excavated and its broken top reaches the average level of 15·8 ft. below datum. The northern end of the wall partially obstructs a doorway, 5 ft. 6 ins. wide, whose sill is at the level −16·8 ft. We may perhaps conclude that this wall is of later date than the Intermediate II Phase, despite the fact that its foundations are at so low a level. It is, however, not included in the plan of the Intermediate I Phase.

Presumably, this great building was still a khan at this period; we have found no reason to think that it was put to any other use.

Intermediate I Phase (Pl. XVIII). Average level: − 13 ft.—The general design of the east wing of this supposed khan during this period was not unlike that of the Intermediate II Phase. A beautifully laid floor in the well-room 35, at the level 14·3 ft. below datum, had survived, with its surface still polished by much use. Owing to the walls around it having been demolished down to just below sill-level, the doorway into this room could not be located. There may have been a doorway in the middle of the western side of room 32, but this is quite uncertain, as there is a large break in this wall. At this period room 34 was entirely shut off from room 27 to the east of it by a large mass of solid masonry, which probably supported a continuation of the important staircase, whose lower flight that was in use during the two preceding phases (Pls. XVI; XVII) was now below the general level of the ground. If so, this staircase must have turned at right angles towards the north just before it reached the well-room.

As the structure of this wing of the khan during the Late Period has already been described, the reader is referred thereto for the subsequent history of the building.

Block 12 (*Pls. XVI–XXI; XXIV, b; XXXI, b; XLI, a; XLII, b, c, d*).

Intermediate III Phase (Pl. XV). Average level: − 20·4 ft.—Block 12 is an almost square enclosure bounded by lanes on the north, south and west. A few structures in its southern half—all that remain of the Intermediate III Phase—are fairly well preserved. The northern portion still awaits excavation down to this level. Whatever there may be of this date is hidden by a huge mass of mud-brick filling. The southern face of the northern enclosure wall is rough as though it had been built against, but the other walls of the block which have been trenched all along show only the remains of two cross walls, seen

[1] Seen in Pl. XVI.

in the plan to project from the eastern and western walls. The first of these has a smooth finished end which suggests a door-jamb, but the other is obviously broken. As so often in the buildings of the Intermediate III Phase, toll had been taken of the bricks of this building also before it was filled in to make a solid and extensive sun-dried brick platform above flood-level for the buildings of the subsequent phase.

There are two entrances in the southern wall close to the south-east corner; the other two openings shown in the plan are merely breaks in the walls. The western of these doorways is 4 ft. 3 ins. wide and the other a little wider; their sills average 20·2 ft. below datum. A third entrance from the west is 3 ft. 4 ins. wide with its sill 21 ft. below datum.

But little remains of the pavement round the well[1] whose top is – 8 ft. below datum, *i.e.*, not later in date than the Late II Phase.

Rooms 90 and 100 are most interesting (Pl. XLII, b, d). Their walls now stand an average of 5 ft. 5 ins. high, and they were both very carefully paved with two courses of bricks measuring 10·5×5·5×2·5 ins. The level of the highest part is 20 ft. below datum, with a very considerable slope to the west so that the water ran under their southern walls through apertures 15 ins. wide by 13 ins. high to the passage 89, 92. Where the drainage eventually went could not be ascertained.[2] The western wall of these two rooms and the pier to the east of 99 had subsided very badly, owing to floods.

There was no pavement in the long room 99, nor in the apparent court 89 to the east of it. No. 99 seems to have been roofed over, for there is a long pier on its eastern side measuring 8 ft. 4 ins. long by 3 ft. 3 ins. wide and separated from the wall at either end by an average distance of 7 ft. 5 ins. (Pl. XLII, d).

Loop Lane to the north of this block (Pl. XLII, c) is 5 ft. wide at the western end and broadens gradually to 6 ft. 4 ins. wide towards the east. Short Lane on the west is 5 ft. wide at the south and 3 ft. 8 ins. at the northern end, where the drain which slopes to the south and measures 7 ins. wide by 14 ins. deep is 22·5 ft. below datum. In Long Lane to the south of the block, which is 4 ft. wide (Pl. XXIV, b), there is a drain whose channel is 7 ins. wide and 12 ins. deep, with its bed 21·3 ft. below datum immediately outside the well-room.

Intermediate II Phase (Pl. XVII). Average level: – 15·9 ft.—The building of this phase was rather better preserved and its ground-plan is fairly complete. The well-room was evidently paved as fragments remained in the north-eastern corner at the level – 16·4 ft. Its entrance was 3 ft. 3 ins. wide with the door-sill a little above the level of the pavement. The walls of this chamber still stood to a considerable height.

A long passage (11, 99) (Pl. XXXI, b, right side) was made by building a wall of sun-dried bricks very nearly parallel with the western wall. This passage averaged 6 ft. 6 ins. wide and the mud-brick wall was coated on its western face with mud-plaster which owes its preservation to having been burnt in some conflagration. A large block of carbonized wood that appeared to be a portion of a beam, which lay beside the broken copper bolts illustrated in Pl. CXXXI, 24, 26, may have been part of the roof of this passage that was burnt.

[1] Its level was 20·1 ft. below datum and it was somewhat roughly laid.

[2] The doorways in these two rooms are 3 ft. 6 ins. wide and their sills at 21·3 ft. below datum.

Against the mud-brick wall at the northern end of the passage was a flight of steps, 3 ft. 9 ins. wide, whose treads were 9·5 ins. broad and 7·5 ins. high; the level of the lowest tread was – 16·9 ft. and that of the topmost one 3 ft. 4 ins. higher.

The sill of the doorway of the previous phase on the western side of the building had been raised to bring this entrance into use again and was now 3 ft. 8 ins. wide.

A series of four niches in the western wall of the passage, two of which had been blocked up at a later date, may have served as cupboards. Their bases averaged 14·2 ft. below datum and all were practically the same width, though in depth they varied from 1 ft. to 2 ft. In height, these niches were carried with the walls up to the level – 12·1 ft. below datum; and in consequence, they appear also in the plan of the Intermediate I sub-period.

A thin and very roughly built wall in room 89, half a brick in thickness, and only some 7 ins. high, probably once formed part of a drain.

With the exception of the passage on the west, the interior of this block had been filled in with mud-brick, as is seen in the distance on the right in Pl. XXXI, b. The sun-dried bricks of this filling were of two sizes, 15×8×3·5 ins. and 15×7×3·5 ins. The filling was probably done late in the Intermediate II Phase and at about the same time as the mud-brick wall of passage 11, 99 was built. Indeed, it is likely that this wall was built solely to act as a retaining wall for the mud-brick platform, which covered the whole of the interior of the building save the passage and the well-room. Whether this mass of sun-dried brick, which still reaches the level – 11·9 ft. in places, was laid down all at once or in successive layers, it is difficult to say, owing to its now homogenous nature, it was difficult to extract separate bricks from it for measurement.

A very curious building at the north-eastern corner of the large court of this building may have been a watch-tower. Its northern façade is seen in Pl. XLI, a, and it will be noticed that there are a number of apertures vertically one above the other that communicated with the drains of the various occupations. The levels of the lower edges of these four drain-holes are 18·7 ft., 15·8 ft., 13·8 ft., and 7·1 ft. The lowest of the four clearly belongs to the Intermediate III Phase for it communicated with a street drain of that date, whose channel, 7·75 ins. wide and now 3·15 ins. deep, must when it was in use have been underground.[1] The uppermost of these holes served to drain a pavement of Late II date inside the building. The masonry of the northern face of this tower is so good that the repeated raising of its walls is only indicated by these outlets, all of which communicate with a vertical channel measuring 1 ft. 2 ins. by 9·25 ins. in the thickness of the wall. The sizes of the bricks used at the various levels are as follows:—Lowest level, 11·5×5·75×3·5 ins.; bricks at base of second hole from the bottom, 11·35×5·75×3 ins.; and those level with the third hole from the bottom, 11·25×5·75×2·75 ins.

The doorway of the Intermediate II Phase could not be traced; it was probably so carefully bricked up at the time when the building was reconstructed in the Intermediate I Phase that all trace of it has disappeared. The width of the northern façade at the level of the lowest drain hole is 13 ft. 6 ins., and the room inside was 6 ft. by 4 ft.

[1] Its bed was 18·7 ft. below datum.

Intermediate I Phase (Pl. XVIII). Average level: – 13 ft.—Since this block was almost entirely filled up with mud-brick in the Intermediate II Phase, we should hardly expect to find many traces of building of the Intermediate I Phase. It will be noticed that those walls that do appear in the plan are merely those that were in use in the Intermediate II Phase raised to bring them into use again. The position of this block close to the apparent outskirts of the city on this side, coupled with the fact that it was surrounded on three sides by open thoroughfares which would have acted as conduits in times of flood, must have led to the decision that it was desirable to raise its level. It does not, however, follow that this mud-filling was all laid down at one time; it was probably added to as necessity arose. Unfortunately, we cannot prove this; these fillings have in every case been so compacted by the infiltration of flood-water and by rains that it is exceedingly difficult to extract whole bricks from them for measurement. The sun-dried bricks that were used were always laid with great care and cemented together with mud-mortar to avoid settlement. An indication that this particular mud-brick platform—an unusually thick one—was not all laid down at one period is afforded by the presence of the thin, indefinite walls on the eastern side of the block and especially by the doorway, 2 ft. 4 ins. wide with its sill 13·4 ft. below datum, into the tower-like structure in the north-eastern corner. This door must certainly have been in use in the Intermediate I Phase, but we found it concealed by a mud-filling which must have been put there at some subsequent date. Each successive flood, it should be noted, would necessarily raise the level of the ground outside the city, and the mud-platforms would have had to be raised still further to be well above the outside level. In the process all burnt brick of value would have been removed for use elsewhere. One would expect broken bricks to have been left behind, and, in fact, we do find here and there some evidence of their existence. On the other hand, it seems to have been thought that the presence of débris might cause a settlement in the filling and it was accordingly removed.

In this phase the little tower-like building in the N. E. corner was narrowed from east to west, and the space left between it and the building immediately to the east was roughly filled up with bricks laid on their edges, as is seen in the photograph Pl. XLI, a.

Late III Phase (Pl. XIX). Average level: — 9·9 ft.—Very few remains were found of the building of this phase. A clean sweep seems to have been made of its interior as well as of the outer walls, all that was left being the little room 89, the upper part of the well with a few surrounding walls, and the tower-like structure in the north-eastern corner.

A broken pavement close to the door of room 89 was 10·1 ft. below datum, and the walls of this room which were built in part on masonry of the Intermediate I Phase averaged a little under 1 ft. high. The chamber of the tower in the corner averaged 9 ft. 4 ins. long by a little over 5 ft. wide; but the level of the door-sill could not be determined as the bricks had been removed.

Late II and I (b and a) Phases (Pl. XX). Average levels: – 7 ft., – 5 ft., and – 3·2 to +0·8 ft.—Owing to denudation a great part of the buildings of Late II and I date in this block have disappeared. The ground-plan of a long rectangular structure along its northern side which appears to have comprised two houses was, however, practically intact.

The little isolated tower in the north-east corner was now a part of room 1, 2 of the larger house. Its well-preserved paved floor of cut bricks, 10×5×2 ins. in size, was unusually thick, *i.e.*, 1 ft. 2 ins.[1] It sloped very gradually towards the north where by an aperture in the wall, 10 ins. wide by 1 ft. high (Pl. XLI, a, top), the water escaped into the street. A blocked-up doorway, 3 ft. 7 ins. wide, in the southern wall of room 1 was dated by the level of the sill to the Late II Phase.[2] The little pavement in the south-western corner of room 3 was either an ablution place or privy, for it was partially screened from the rest of the room by a partition wall.[3]

The house to the west was entered in the Late II Phase by a door, 2 ft. 6 ins. wide, leading into room 9. This door was bricked up, at a later date, when the house was entered only from the lane along the north of the block by a door, 3 ft. 10 ins. wide, into room 11.

The soak-pit and drain in the south-western corner of the block at this time have been described in connection with House IV of Block 10; they drained the well-chamber of that house.

The top of the well in the dilapidated house in the south-eastern corner of the block only reached the level 8 ft. below datum. There was no trace of a pavement around it, nor could a doorway be traced leading into the well-room. The fragments of a very poor pavement in room 96 to the north of the well were 6·5 ft. below datum.

Block 12A (*Pls. XVI–XXI; XXXI, a; XXXIV, c, d; XLI, a; CXXXI, 28–32, 34–9*).

Intermediate III Phase (*Pl. XVI*). *Average level: – 20·4 ft.*—Only the southern side of this block has been cleared down to Intermediate III level, and that incompletely. The northern portion still lies under many feet of débris as its excavation has only been carried as far down as the base of the Late II Phase.

A doorway of Intermediate III date on the western side of the southern portion of the block was originally 5 ft. 7 ins. wide and was not long afterwards narrowed to 3 ft. 3 ins.,[4] and was completely blocked up in the Intermediate II Phase.

Room 15 which is slightly askew measures 13 ft. by an average of 6 ft. 6 ins.[5] A bricked-up doorway in its southern wall was 3 ft. 2 ins. wide, and though the sill was as low as 24·2 ft. below datum, the door-jambs still stand 5 ft. high. Just inside this room and close to the eastern jamb of the door a collection of copper and bronze tools and implements was found which is illustrated in Pls. CXXVI, 1–5; CXXVII, 1, 2; CXXXI, 28–32, 34–9; CXXXII, 33–5. This is the most important group of implements found previous to the season 1930-31. Pictographs and other signs are incised on some of the tools and are the only examples with the exception of a knife[6] so marked that have been found at Mohenjo-daro, though they are well known at Harappā.

[1] Its surface was 5·8 ft. below datum.

[2] At 6·8 ft. below datum.

[3] This pavement was 5·8 ft. below datum.

[4] Its sill is 20·3 ft. below datum.

[5] It was built with bricks measuring 11·75×5·63×2·63 ins.

[6] Pl. CXXXIII, 1.

Intermediate II Phase (Pl. XVII). Average level: – 15·9 ft.—At this period, the block presents several features of interest, and the average height of the walls still standing is 5 ft. There were two distinct houses in its southern part.

House I in the S. W. corner of the block was entered from the south by a doorway,[1] 4 ft. 2 ins. wide, into a passage, 6 ft. 9 ins. wide, along whose centre a small drain ran out to the street. The sill of the 3 ft. 4 ins. wide doorway that led from this passage into the courtyard (16) on the left was as much as 18·2 ft. below datum, and it had been subsequently raised to suit the general level of the house. The court (16) seems to have been wholly or partially roofed in, for two columns, averaging 2 ft. square and resting on plinths of a slightly larger size evidently served for the support of roof-beams.

A well-laid pavement, 7 ft. 1 in. by 4 ft. 11 ins. in size, in the south-western corner of room 12, 15 was bounded on two sides by a low wall, half a brick in thickness. This floor whose highest part was 17·4 ft. below datum had settled badly in places.[2] The water escaped through a small chute in the southern wall into a street drain whose channel was 7·25 ins. wide by 13·25 ins. deep. This chute was built in shallow steps, not unlike the one illustrated in Pl. XLI, c, doubtless to break the force of the water and to prevent its splashing the passer-by.

House II was most substantially built, but unfortunately its walls were nearly all destroyed to below door-level; only the southern entrance which is 4 ft. 8 ins. wide and 15·7 ft. below datum can still be traced. Yet in places the walls are a substantial height, as some were re-used and others raised in the succeeding periods (Pl. XXXI, a).

Intermediate I Phase (Pl. XVIII). Average level: – 13 ft.—The walls of this phase were all built upon those of the previous phase, but some of them were rather thinner. In some cases the doorways of the Intermediate II Phase were re-used by raising their sills and heightening their jambs to suit the higher level of the Intermediate I occupation. The old doorway on the southern side of room 22 of House II was, however, partially blocked up and converted into a large niche that was probably used as a cupboard. In place of this door, a new one, 4 ft. 5 ins. wide, led into room 19.[3] A second doorway was made on the eastern side of the house into room 23.[4] Fragments of brick paving in rooms 22 and 23 were an average of 11·9 ft. below datum.

Late III Phase (Pl. XIX). Average level: – 9·9 ft.—Practically no trace remained of the southern portion of this block at the Late III Phase.

Late II and I (b and a) Phases (Pl. XX). Average level: – 7 ft., – 5 ft., and – 3·2 + 0·8 ft.—Only the foundations of the western portion of House I remain. The channel of the drain from room 18 was 7 ins. wide by 11 ins. deep, and it was made of bricks 10×6×2 ins. in size. Where this drain turned westward, the floor of its channel was 7·8 ft. below datum, a level which probably dates it to the Late Ib Phase. The drain at the eastern end of the same little street appears to have had no connection with it, for its channel, though of the

[1] Its sill was 16·3 ft. below datum.

[2] The bricks used in its construction were 10·12×5·25×2·4 ins. in size.

[3] Its sill was 12·1 ft. below datum.

[4] The sill of this was 12·6 ft. below datum.

same width, was no less than 2 ft. deep with its floor 9·8 ft. below datum. This latter drain was at one time continuous with the one between Blocks 9 and 9A, from which direction the drainage ran.

List of Objects from DK AREA, G Section, Southern Portion.

Object.	Plate and No.	Room.	Level. (Ft.)
Block 1.			
House I.			
Pottery Mask of Bull	(Pl. LXXIX, 32)	13	−28·4
Pottery Group	(Pl. LXIV, 16, 22, 29, 36)	22	−20·9
Copper Chisel	(Pl. CXXIV, 3)	18	−18·1
Pottery Group	(Pl. LXV, 14, 15)	18	−13·1
Faience Ornament	(Pl. C, 8)	22	−12·8
Faience Stud	(Pl. CXL, 46)	13	−11·1
Copper Chisel	(Pl. CXXI, 9)	18	− 8·1
Chert Burnisher	(Pl. CIV, 16)	18	− 5·5
Court I.			
Male Figurine	(Pl. LXXVI, 15)	15	−19·5
Limestone Gamesman	(Pl. CXLII, 62)	21	−19·5
Pottery Bangle	(Pl. CXLII, 26)	73	−19·5
Faience Vase	(Pl. CXLII, 46)	82	−19·5
Copper Chisel	(Pl. CXXXIII, 19)	21	−19·2
Faience Ram	(Pl. CXI, 10)	21	−19·3
Copper Bangle	(Pl. CXLII, 20)	21	−18·3
Pottery Jar	(Pl. LXI, 32)	72	−18·7
Seal	(Pl. XCVII, 590)	20	−17·7
Pottery Infant	(Pl. LXXVI, 25)	75	−17·3
Ivory Object	(Pl. CXLIII, 46)	73	−16·6
Shell Bangle	(Pl. CXLII, 13)	81	−16·5
Faience Gamesman	(Pl. CXLII, 73)	21	−14·5
Pottery Bobbin	(Pl. CVIII, 32)	20	−14·4
Seal	(Pl. XCV, 450)	21	−13·4
Copper Knife	(Pl. CXXXIII, 28)	21	−13·1
Flint Flakes	(Pl. CVII, 25, 26)	20	−10·4
Pottery Group	(Pl. LIX, 19–21, 27, 28)	18	− 8·8
Court III.			
Female Figurine	(Pl. LXXV, 15, 16)	1	−20·0
Faience Stud	(Pl. CXLII, 5)	1	−19·9
Copper Razor	(Pl. CXXXII, 19)	2	−19·4
Bronze Ram	(Pl. LXXIX, 5)	17	−19·3
Pottery Cage	(Pl. LXXXI, 6)	1	−17·0
Copper or Bronze Ring	(Pl. CXLII, 22)	1	−16·8
Pottery Group	(Pl. LXIV, 4, 11)	17	−14·4
Pottery Animal	(Pl. LXXXI, 1 and 1*a*)	1	−14·4
Condiment Dish	(Pl. LXVI, 21)	1	−13·7
Pottery Gamesman	(Pl. CXLII, 58)	1	−13·5
Pottery Gamesmen	(Pl. CXLII, 54)	2	−13·2
Pottery Kohl-jar	(Pl. LX, 51)	2	−13·0
Copper Lance-head	(Pl. CXVII, 10)	1	−10·1
Female Figurine	(Pl. LXXII, 4)	?	− 7·2
Copper Lance-head	(Pl. CXVII, 5)	1	− 6·9
Central Corridor.			
Alabaster Stand	(Pl. CVIII, 21)	14	−17·1
Polished Stone	(Pl. CIX, 25)	14	−17·0
Macehead (?)	(Pl. CIX, 29)	9	−15·5
Pottery Group	(Pl. LXV, 48–51)	15	−13·9

Object.	Plate and No.	Room.	Level. (Ft.)
Pottery Object	(Pl. CIX, 30)	15	−13·9
Faience Ball	(Pl. CXLII, 65)	15	−13·1
Copper Awl	(Pl. CXXIV, 4)	15	− 9·4
Western Court.			
Copper Chisel	(Pl. CXXX, 10)	61	−21·8
Female Figurine	(Pl. LXXVI, 11)	60	−20·4
Pottery Jar	(Pl. LXI, 37)	63	−20·3
Copper Knife	(Pl. CXXX, 23)	61	−19·8
Saddle Querns	(Pl. CVIII, 31, 34)	63	−18·1
Shell Spindle-whorl	(Pl. CIX, 48)	63	−18·0
Limestone Weight	(Pl. CXI, 74)	63	−18·0
Storage Vessel	(Pl. LXII, 50)	63	−17·7
Alabaster Pedestal	(Pl. CX, 37)	23	−17·6
Limestone Weight	(Pl. CXI, 76)	23	−16·7
Alabaster Jar	(Pl. CXLIII, 14)	24	−16·6
Brick Gaming-board	(Pl. CXLII, 82)	61	−16·2
Barrel-weight	(Pl. CXI, 75)	62	−13·7
Shell Hook	(Pl. CVIII, 11)	10	−13·6
Copper Awl	(Pl. CXXX, 5)	63	−13·4
Copper Domes	(Pl. CXL, 54, 66)	63	−11·8
Faience Ornament	(Pl. CXL, 31)	25	−11·1
Copper Chisel	(Pl. CXXI, 20)	10	−10·2
Chert Burnisher	(Pl. CIV, 12)	61	− 8·4
Bronze (?) Dagger	(Pl. CXX, 3)	10	− 7·1
House II.			
Pottery Bird	(Pl. LXXX, 21)	33	−20·3
Faience Handle (?)	(Pl. CX, 24)	32	−19·8
Copper Chisel	(Pl. CXXXIII, 20)	7	−19·6
Faience Button	(Pl. CXXXIX, 1)	7	−17·0
Copper Vase	(Pl. CXXVIII, 17, 20)	6	−14·4
Copper Knife	(Pl. CXXX, 28)	9	−13·2
Seal	(Pl. XCIV, 420)	7	−12·8
Faience Gamesman	(Pl. CXXXVII, 4)	6	−10·1
House IV.			
Copper or Bronze Ring	(Pl. CXLII, 18)	26	−17·9
Copper Knife	(Pl. CXXIX, 8)	24	−17·2
Pottery Object	(Pl. CVIII, 9 and 10)	28	−17·4
Copper Dagger	(Pl. CXXIX, 3)	30	−14·3
Copper Hook	(Pl. CV, 24)	24	− 9·3
Portion of Paste Vase	(Pl. CVII, 2)	27	− 8·2
House V.			
Alabaster Feeding-cup	(Pl. CXLIII, 10)	46	−18·3
Seal	(Pl. XCVI, 512)	47	−15·3
Female Figurine	(Pl. LXXV, 1)	48	−13·4
Copper Vase	(Pl. CXXVIII, 19)	46	−12·6
Shell Spindle-whorl	(Pl. CIX, 57)	41	−12·4
Flint-flake	(Pl. CVII, 28)	46	−11·8
Limestone Cone	(Pl. CIV, 28)	44	−11·6
Flint-flake	(Pl. CVII, 24)	46	−11·3
Bronze Dagger	(Pl. CXX, 18)	47	− 9·2
Copper Bangle	(Pl. CXL, 64)	42	− 8·4
Shell Rod	(Pl. CV, 58)	42	− 7·8
Seal	(Pl. LXXXV, 131)	43	− 6·6
Copper Chisel	(Pl. CXXI, 17)	43	− 6·4

Object.	Plate and No.	Room.	Level. (Ft.)
House VI.			
Portion of Ivory Vessel	(Pl. CXLII, 48, 49)	55	– 18·4
Copper Axe	(Pl. CXXXII, 40)	52	– 17·8
Copper Axe	(Pl. CXXXII, 36)	52	– 17·8
Sealing	(Pl. CII, 13)	55	– 17·5
Frag. Alabaster Bowl	(Pl. CXLIII, 2*a*)	55	– 17·4
Pottery Bowl	(Pl. LX, 31)	50	– 15·1
Lump of Vitreous Paste	(Pl. CXI, 55, 66)	64	– 14·6
Seal	(Pl. XCIV, 411)	52	– 12·6
Pottery Offering-stand	(Pl. LV, 5)	53	– 11·6
House VII.			
Pottery Jar	(Pl. LXI, 17)	56	– 19·4
Copper Chisel	(Pl. CXXX, 3)	56	– 19·0
Macehead (?)	(Pl. CIX, 26)	56	– 19·0
Seal	(Pl. XCVIII, 606)	35	– 18·2
Horned Mask	(Pl. LXXVI, 3)	3	– 17·3
Pottery Die	(Pl. CXLII, 84)	3	– 16·6
Copper Razor	(Pl. CXXVIII, 11)	36	– 16·5
Copper Razor	(Pl. CXXXII, 16)	36	– 16·5
Copper or Bronze Ring	(Pl. CXLII, 10)	3	– 16·2
Sealing	(Pl. CI, 2)	37	– 16·1
Copper Pan	(Pl. CXXVIII, 15)	3	– 14·5
Limestone Rocker	(Pl. CVIII, 33)	3	– 14·5
Copper Arrow-head	(Pl. CXXVII, 10)	34	– 13·1
Copper Chisel	(Pl. CXXIV, 7)	3	– 11·9
Grinder	(Pl. CIV, 20)	57	– 8·8
Copper Ring	(Pl. CXXXVI, 87)	3	– 4·6
House VIII.			
Ivory Hook	(Pl. CX, 1)	63	– 20·0
Seal	(Pl. XCVII, 554)	63	– 16·5
Female Figurine	(Pl. LXXV, 20)	63	– 15·8
Block 1A.			
Female Figurine	(Pl. LXXV, 5)	59	– 20·3
Faience Object	(Pl. CVIII, 19)	1	– 20·1
Faience Gamesman	(Pl. CXLII, 72)	90	– 20·1
Copper or Bronze Ring	(Pl. CXLII, 12)	89	– 19·6
Copper Vase	(Pl. CXXVIII, 16)	91	– 19·4
Agate Marble	(Pl. CXLII, 78)	59	– 18·1
Faience Ornament	(Pl. CIX, 22)	87	– 17·1
Copper Axe	(Pl. CXXXI, 21)	87	– 15·9
Copper Dish	(Pl. CXXXII, 3)	87	– 15·9
Bronze Axe	(Pl. CXXVIII, 1)	87	– 15·9
Copper or Bronze Ring	(Pl. CXLII, 17)	87	– 15·9
Copper Awl	(Pl. CXXXI, 3)	58	– 15·7
Hapt of Copper Chisel	(Pl. CXXX, 1)	87	– 14·3
Bronze Mirror	(Pl. CXXXII, 24)	87	– 14·3
Shell Ball	(Pl. CXLII, 68)	92	– 12·4
Ivory Rod	(Pl. CV, 53)	89	– 8·3
Block 2.			
House I.			
Sealing	(Pl. CII, 4)	14	– 20·8
Copper Chisel	(Pl. CXXX, 4)	8	– 20·7
Pottery Ram	(Pl. LXXX, 8)	8	– 19·9

Object.	Plate and No.	Room.	Level. (Ft.)
Copper Fish-hook	(Pl. CXXVII, 6)	8	–19·4
Pottery Toy	(Pl. LXXXI, 14)	8	–18·6
Pottery Bird	(Pl. LXXX, 17)	8	–18·4
Pottery Cart-frame	(Pl. CXLII, 83)	12	–18·4
Copper Arrow-head	(Pl. CXXVII, 8)	8	–16·7
Shell Gamesman	(Pl. CXXXIX, 21)	10	–15·4
Copper Knife or Dagger	(Pl. CXXIX, 5)	13	–13·8
Copper Arrow-head	(Pl. CXXI, 4)	8	– 9·3
Faience Stud	(Pl. CXL, 42, 43)	8	– 9·0
Copper Knife	(Pl. CXX, 23)	6	– 8·1
House II.			
Round Ivory Rod	(Pl. CX, 52)	22	–17·5
Jade Gamesman	(Pl. CXXXIX, 7)	25	–15·3
Lapis-lazuli Gamesman	(Pl. CXXXIX, 18)	25	–15·2
Stone Die	(Pl. CXLII, 86)	25	–15·2
Copper Knife	(Pl. CXXX, 8)	22	–14·5
Shell Spindle-whorl	(Pl. CIX, 56)	24	–12·7
Mace-head	(Pl. CIX, 24)	22	–12·6
Shell Ball	(Pl. CXLII, 67)	22	–10·9
Copper Inlay (?)	(Pl. CXXIV, 24)	23	–10·6
Copper Chisel	(Pl. CXXIV, 16)	24	– 6·7
House IV.			
Pottery Cone	(Pl. CX, 10)	19	–19·3
Painted Storage Jar	(Pl. LXIII, 15)	21	–17·5
Male Figurine	(Pl. LXXVI, 6)	22	–17·7
Seal	(Pl. XCVII, 587)	22	–17·6
Copper Melt	(Pl. CXXXII, 38)	15	–14·5
Copper Melt	(Pl. CXXXII, 37)	15	–12·3
Copper Melt	(Pl. CXXXII, 39)	15	–12·3
Copper Cone	(Pl. CV, 22)	15	–11·8
Copper Melt	(Pl. CXXI, 34)	15	–11·1
Block 3.			
House I.			
Feeding Cup	(Pl. LXI, 50)	16	–20·8
Ivory Pin	(Pl. CX, 56)	4	–19·4
Storage Jar	(Pl. LXIII, 12)	15	–18·1
Pottery Head	(Pl. LXXVI, 12)	5	–17·8
Female Figurine	(Pl. LXXV, 17)	5	–16·9
Pottery Strigil	(Pl. CVIII, 2)	16	–16·3
Pottery Incised Jar	(Pl. LXI, 36)	5	–16·2
Ivory Object	(Pl. CXLIII, 45)	5	–15·7
Faience Button	(Pl. CXLII, 33)	5	–14·7
Mace-head (?)	(Pl. CIX, 43)	15	–13·4
Bronze Chisel	(Pl. CXIX, 11)	8	– 6·2
House II.			
Copper Knife or Dagger	(Pl. CXXIX, 4)	25	–19·0
Alabaster Jar-cover	(Pl. LXII, 7)	25	–18·9
Ivory Pin	(Pl. CX, 58)	25	–17·8
Sealing	(Pl. CII, 5)	34	–17·7
Round Ivory Rod	(Pl. CX, 45)	41	–15·5
Copper Knife	(Pl. CXXX, 9)	24	–15·4
Barrel-weight	(Pl. CX, 4)	34	–13·0

Object.	Plate and No.	Room.	Level. (Ft.)
House III.			
Copper Chisel	(Pl. CXXXIII, 5)	36	–17·7
Copper Bangle	(Pl. CXLII, 21)	36	–17·3
Copper Knife	(Pl. CXXIX, 9)	42	–17·2
Seal	(Pl. XCVI, 522)	26	–15·5
Paste Vase	(Pl. CXLII, 47)	26	–15·1
House IV.			
Copper Pan	(Pl. CXXXII, 4)	45	–18·7
Storage Jar	(Pl. LXIII, 6)	48	–17·9
Copper Awl	(Pl. CXXXI, 5)	45	–16·5
Seal	(Pl. XCVI, 518)	45	–15·4
Pottery Group	(Pl. LXV, 22, 23, 32, 33, 43)	45	–15·4
Steatite Bobbin	(Pl. CX, 33)	48	–13·2
House V.			
Alabaster Jar-lid	(Pl. CXLIII, 6)	22	–14·9
Pottery Wheel	(Pl. CV, 54)	13	– 9·3
Ivory Rod	(Pl. CV, 29, 31)	11	– 8·7
Copper Chisel	(Pl. CXXI, 15)	9	– 7·1
Copper Chisel	(Pl. CXXIV, 13)	13	– 6·9
Copper Ornament	(Pl. CXXIV, 27)	8	– 6·9
Shell Ball	(Pl. CXL, 37)	13	– 6·7
House VI.			
Pottery Kid	(Pl. LXXX, 14)	47	–29·3
Pottery Gamesman	(Pl. CXLII, 60)	47	–20·7
Copper Awl	(Pl. CXXXI, 8)	47	–20·6
Handled Jar	(Pl. LXII, 23)	47	–20·6
Pottery Rasp	(Pl. CIX, 49)	47	–20·6
Pottery Gamesman	(Pl. CXLII, 60)	47	–20·7
Ivory Pin	(Pl. CX, 57)	47	–20·7
Pottery Scale-pan	(Pl. CIX, 32)	47	–19·4
Ivory Jar-stopper	(Pl. CIX, 19)	47	–19·4
Paste Ram	(Pl. LXXX, 13)	47	–19·3
Pottery Group	(Pl. LXIV, 52–57, 60–62)	29	–19·2
Incised Vessel	(Pl. LXII, 39)	29	–19·2
Pottery Group	(Pl. LXIV, 5, 6, 17, 18)	40	–18·9
Chert Marble	(Pl. CXLII, 75)	40	–18·7
Copper Knife or Dagger	(Pl. CXXXIII, 29)	40	–18·7
Alabaster Vessel	(Pl. CXLII, 44)	40	–18·4
Copper Knife	(Pl. CXXXIII, I)	40	–18·4
Copper Knife	(Pl. CXXXI, 12)	47	–17·7
Storage Jar	(Pl. LXIII, 7)	47	–16·8
Copper Rod	(Pl. CXXXI, 10)	40	–15·3
Copper Scale-pans	(Pl. CXXXII, 14)	30	–12·9
Seal	(Pl. LXXXIX, 376)	32	–11·8
Pottery Turtle	(Pl. LXXVII, 21)	40	–11·5
Bronze Chisel	(Pl. CXXIV, 21)	31	–10·8
Pottery Bowl	(Pl. LVI, 53)	31	–10·6
Copper Knife	(Pl. CXIX, 5)	29	–10·6
Block 4.			
Storage Jar	(Pl. LXIII, 9)	12	–21·6
Pottery Bird's Head	(Pl. LXXXI, 3)	79	–21·3
Copper Chisel	(Pl. CXXX, 3)	16	–21·2
Pottery Group	(Pl. LXV, 37–41)	11	–21·0
Bone Awl	(Pl. CIX, 10)	15	–20·8

Object.	Plate and No.	Room.	Level. (Ft.)
Pottery Group	(Pl. LXIV, 38, 39, 43, 49)	8	−20·4
Pottery Head	(Pl. LXXVI, 9)	8	−20·4
Pottery Bangle	(Pl. CXLII, 24, 25)	8	−20·4
Flint core	(Pl. CVIII, 20)	8	−20·4
Pottery Label	(Pl. CIX, 18)	15	−20·4
Copper Knife	(Pl. CXXX, 20)	15	−20·2
Round Ivory Rod	(Pl. CX, 48)	14	−20·2
Painted Jar	(Pl. LXII, 38)	14	−20·2
Pottery Group	(Pl. LXV, 7, 8, 12, 13, 21)	5	−19·6
Pottery Pan	(Pl. LXIII, 11)	79	−19·4
Copper Knife	(Pl. CXXIX, 7)	8	−19·4
Copper Knife	(Pl. CXXXIII, 27)	15	−19·0
Painted Vessel	(Pl. LXII, 44)	9	−18·4
Pottery Bangle	(Pl. CXXXVI, 94)	8	−18·4
Horn Peg	(Pl. CVIII, 14)	5	−18·4
Steatite Pin-head	(Pl. C, 13)	15	−18·3
Pottery Whorl	(Pl. CIX, 51)	8	−18·3
Frag. Worked Shell	(Pl. CXI, 86)	12	−18·2
Pottery Bowl	(Pl. LX, 65)	6	−17·9
Pottery Whistles	(Pl. CIX, 60, 61)	8	−17·7
Offering Stand	(Pl. LX, 13)	7	−16·8
Seal	(Pl. XCVI, 488)	12	−14·5
Pottery Rattle	(Pl. CXLII, 87)	13	−13·7
Pottery Group	(Pl. LXV, 5, 6)	8	−12·4
Copper Chisel	(Pl. CXIX, 13)	15	−10·2
Case-seal	(Pl. XC, 9, 10)	13	− 9·3
Seal	(Pl. LXXXVII, 260)	13	− 9·3
Pottery Monkey (?)	(Pl. LXXVIII, 8)	14	− 8·2
Female Figurine	(Pl. LXXII, 1)	10	− 8·0
Faience Gamesman	(Pl. CXXXVII, 6)	14	− 6·1
Ivory Object	(Pl. CXLI, 47)	79	− 5·9

Block 5.

House I.

Object.	Plate and No.	Room.	Level. (Ft.)
Copper Knife	(Pl. CXXXIII, 24)	2	−20·7
Seal	(Pl. XCIX, 651)	2	−20·6
Copper Axe	(Pl. CXXVIII, 4)	2	−18·6
Pottery Animal	(Pl. LXXX, 10)	2	−18·4
Ivory Baton	(Pl. CIX, 5)	4	−16·3
Copper Knife	(Pl. CXXIX, 6)	11	−13·6
Pottery Pan	(Pl. LXI, 80)	12	−13·2

House II.

Object.	Plate and No.	Room.	Level. (Ft.)
Pottery Gamesman	(Pl. LXXXI, 16)	7	−18·6
Copper Knife	(Pl. CXXXIII, 12)	6	−17·7
Pottery Bull's Head	(Pl. LXXIX, 23)	7	−14·9
Limestone Statue	(Pl. CV, 60, 61)	6	− 9·2

House III.

Object.	Plate and No.	Room.	Level. (Ft.)
Copper Chisel	(Pl. CXXX, 6)	16	−15·8
Copper Spear-head	(Pl. CXXXIII, 25)	10	−14·4
Copper Knife	(Pl. CXXIX, 11)	10	−14·4

Block 6.

House I.

Object.	Plate and No.	Room.	Level. (Ft.)
Mace-head	(Pl. CX, 22)	1	−12·4
Copper Chisel	(Pl. CXXIV, 26)	3	−11·1
Copper Arrow-head	(Pl. CXXI, 1)	1	− 8·1

Object.	Plate and No.	Room.	Level. (Ft.)
House II.			
Pottery Dove	(Pl. LXXX, 25)	6	−18·8
Seal	(Pl. LXXXVIII, 299)	10	−10·0
Frag. Shell Bangle	(Pl. CXL, 47)	10	− 9·8
Faience Button	(Pl. XCI, 31)	10	− 9·5
House III.			
Bronze (?) Knife	(Pl. CXIX, 7)	14	−11·5
Copper Ring	(Pl. CXL, 52)	15	−10·2
Whetstone	(Pl. CV, 20)	14	− 9·6
Copper Arrow-head	(Pl. CXXV, 45)	25	− 9·2
Limestone Cone	(Pl. CIV, 27)	24	− 8·4
Bronze Chisel	(Pl. CXXIV, 12)	16	− 8·3
Silver Button	(Pl. XCI, 34)	21	− 7·7
Whetstone	(Pl. LXXI, 24)	23	− 1·8
Block 6A.			
Ivory Awl	(Pl. CV, 13)	42	−10·7
Pottery Bulla	(Pl. CXL, 34)	35	−10·4
Copper Pan	(Pl. CXXII, 10)	39	−10·3
Limestone Pedestal	(Pl. CIV, 23)	42	− 9·2
Copper Dish	(Pl. CXXII, 6)	40	− 8·9
Whetstone	(Pl. CVI, 21)	41	− 8·8
Pottery Kohl-jar	(Pl. LVI, 4)	43	− 8·8
Ivory Fish	(Pl. CXXXVIII, 52)	34	− 8·6
Bronze Saw	(Pl. CXIX, 10)	33	− 8·3
Copper (?) Axe. Frag.	(Pl. CXX, 31)	33	− 8·3
Faience Pin-head	(Pl. CXXV, 32)	39	− 8·1
Copper Arrow-head	(Pl. CXXV, 46)	33	− 7·8
Cover-brick	(Pl. LIV, 15)	42	− 6·0
Mace-head (?)	(Pl. CIV, 5)	41	− 5·5
Painted Jar	(Pl. LVI, 36)	40	− 5·6
Agate Die	(Pl. CXL, 63)	41	− 5·6
Block 7.			
House I.			
Pottery Bull	(Pl. CXII, 11)	5	−42·1
Pottery Plaque	(Pl. CXII, 4)	3	−42·6
Pottery Rattle	(Pl. CXII, 3)	5	−41·0
Pottery Axe	(Pl. CXII, 1)	12	−41·0
Pottery Wheel	(Pl. CXII, 5)	2	−41·0
Pottery Bull	(Pl. CXII, 10)	2	−36·6
Pottery Cone	(Pl. CXII, 2)	..	−35·8
Pottery Whorl	(Pl. CIX, 58)	3	−33·3
Pottery Dog	(Pl. LXXIX, 15)	3	−33·3
Female Figurine	(Pl. LXXVI, 7)	14	−30·0
Female Figurine	(Pl. LXXV, 14)	3	−29·9
Frag. Steatite Vessel	(Pl. CXLII, 45)	9	−28·1
Pottery Bull	(Pl. LXXIX, 17)	15	−26·8
Pottery Bull	(Pl. LXXIX, 27)	14	−26·1
Pottery Bird	(Pl. LXXX, 16)	15	−26·2
Whetstone	(Pl. CIX, 38)	9	−24·4
Lead Dish	(Pl. CXXVIII, 21)	3	−22·3
Handled Jar	(Pl. LXII, 21)	9	−21·5
Alabaster Vase	(Pl. LXI, 49)	19	−20·5
Seal	(Pl. XCIX, 648)	19	−20·4
Ivory Pin	(Pl. C, 11)	5	−16·9

Object.	Plate and No.	Room.	Level. (Ft.)
Copper Ferrule	(Pl. CXXXII, 18)	7	−16·0
Female Figurine	(Pl. LXXV, 7)	1	−15·5
Pottery Bird	(Pl. LXXX, 22)	3	−14·9
Painted Jar	(Pl. LXI, 30)	19	−13·5
Pottery Bowl with Foot	(Pl. LXI, 74)	14	−13·4
Pottery Group	(Pl. LXV, 1–4)	12	−13·0
Pottery Goat (?)	(Pl. LXXVII, 14)	19	−11·5
Storage Jar	(Pl. LVIII, 15)	19	−11·3
Copper Razor	(Pl. CXXV, 35)	7	− 9·4
House II.			
Steatite Bull	(Pl. LXXIX, 24)	93	−21·4
Copper Chisel	(Pl. CXXX, 14)	88	−18·4
Steatite Button	(Pl. CXXXIX, 13)	92	−13·3
Storage Jar	(Pl. LVIII, 13)	29	− 9·2
Copper Razor	(Pl. CXIX, 1)	89	− 7·5
Copper Spear-head	(Pl. CXX, 6)	89	− 7·2
Seal	(Pl. LXXXVI, 156)	89	− 7·2
Copper Lance-head	(Pl. CXVII, 7)	89	− 7·2
Pottery Group	(Pl. LIX, 12–15)	88	− 7·1
Seal	(Pl. LXXXIII, 30)	87	− 4·4
House III.			
Steatite (?) Vessel	(Pl. CXLII, 42)	42	−21·1
Pottery Bowl	(Pl. LXI, 41)	44	−19·8
Shell Ladle	(Pl. CXI, 91)	44	−18·3
Small Stone Cone	(Pl. CIX, 41)	51	−17·3
Pottery Bird	(Pl. LXXX, 20)	40	−17·0
Pottery Dog	(Pl. LXXIX, 12)	46	−16·7
Pottery Elephant	(Pl. LXXIX, 13)	44	−16·6
Faience Gamesman	(Pl. CXXXIX, 12)	51	−16·2
Storage Jar	(Pl. LXIII, 8)	52	−16·0
Pottery Group	(Pl. LXV, 11, 19)	52	−16·0
Seal	(Pl. XCVI, 493)	48	−14·8
Ivory Baton	(Pl. CIX, 6)	48	−14·8
Pottery Gamesman	(Pl. LXXXI, 12)	48	−14·8
Copper Fish-hook	(Pl. CXXXII, 25)	48	−14·5
Pottery Whorl	(Pl. CIX, 54)	39	−14·4
Copper Fish-hook	(Pl. CXXXII, 6)	44	−13·5
Mace-head	(Pl. CIX, 35)	43	−13·0
Shell Cone	(Pl. CIX, 41)	43	−13·0
Pottery Animal	(Pl. LXXXI, 19)	44	−12·3
Copper Spear-head	(Pl. CXXXIII, 26)	41	−12·1
Offering Stand	(Pl. LX, 1)	40	−12·1
Copper Knife	(Pl. CXXIX, 10)	41	−12·1
Female Figurine	(Pl. LXXIV, 15)	39	− 9·0
Pottery Group	(Pl. LIX, 4–6)	47	− 8·5
Female Figurine	(Pl. LXXIII, 4)	89	− 7·3
Bronze Chisel	(Pl. CXXI, 16)	52	− 6·6
Vitreous Paste Vase	(Pl. LVI, 24)	44	− 5·5
Copper Reamer	(Pl. CXXIV, 6)	45	− 4·7
Limestone-marble	(Pl. CXL, 36)	41	− 4·2
Stone Pedestal	(Pl. CIV, 22)	52	− 3·5
Vitreous Paste Vase (?)	(Pl. CXXXVII, 14)	40	− 3·4
Pottery Infant	(Pl. LXXVIII, 10)	40	− 3·2
Frag. Faience Vase	(Pl. CV, 35)	40	− 3·2

Object.	Plate and No.	Room.	Level. (Ft.)
House IV.			
Female Figurine	(Pl. LXXVI, 5)	69	−23·1
Pottery Cone	(Pl. CIX, 21)	49	−20·0
Copper Horn (?)	(Pl. CXXXII, 20)	50	−19·2
Brick Runnel	(Pl. CVIII, 18)	50	−19·3
Pottery Toy	(Pl. LXXXI, 5)	72	−18·5
Ivory Gamesman (?)	(Pl. CXLIII, 35)	71	−18·2
Ivory Hair-pin	(Pl. C, 2)	71	−18·2
Ivory Pin	(Pl. CX, 55)	50	−17·2
Copper Knife or Dagger	(Pl. CXXVII, 3)	49	−17·4
Copper Knife	(Pl. CXXIX, 2)	47	−17·3
Unfinished Weight	(Pl. CXI, 81)	49	−16·8
Bronze Mirror	(Pl. CXXXII, 26)	72	−16·5
Pottery Bird-chariot	(Pl. LXXXI, 13)	72	−16·3
Sealing	(Pl. CI, 6)	71	−16·2
Paste Bird	(Pl. LXXX, 24)	49	−15·1
Female Figurine	(Pl. LXXV, 19)	49	−15·0
Bone Hair-pin	(Pl. C, 5)	49	−14·9
Copper Awl	(Pl. CXXX, 7)	70	−12·1
Male Figurine	(Pl. LXXIII, 8)	70	−11·4
Pottery Candlestick	(Pl. LIV, 12)	72	− 7·7
Copper Bangle	(Pl. CXL, 60)	72	− 7·7
Copper Bangle	(Pl. CXL, 62)	72	− 7·7
Copper Dagger	(Pl. CXX, 2)	70	− 7·5
Copper (?) Axe	(Pl. CXX, 28)	70	− 7·5
Bronze Axe	(Pl. CXX, 30)	70	− 7·5
House V.			
Female Figurine	(Pl. LXXVI, 10)	68	−21·5
Storage Vessel	(Pl. LXII, 45)	53	−19·5
Copper Knife	(Pl. CXXXI, 15)	64	−19·3
Inscribed Jar	(Pl. LXIII, 1)	64	−18·4
Pottery Object	(Pl. CX, 25)	68	−17·3
Copper Fish-hook	(Pl. CXXVII, 5)	66	−17·0
Copper Lance-head	(Pl. CXXX, 21)	78	−13·4
Shell Spindle-whorl	(Pl. CIX, 55)	78	−12·9
Part of Alabaster Dish	(Pl. CXLIII, 2)	66	−12·5
Female Figurine	(Pl. LXXV, 8)	51	−12·0
Bronze Hair-pin	(Pl. C, 3, 10)	51	−12·0
Perforated Jar	(Pl. LVIII, 2)	64	− 9·0
Copper or Bronze Ring	(Pl. CXL, 55)	63	− 7·3
Faience Button	(Pl. CXL, 44)	62	− 6·4
Copper or Bronze Ring	(Pl. CXL, 50)	79	− 6·4
Stone Gamesman	(Pl. CXXXVII, 2)	54	− 4·5
House VI.			
Pottery Gamesman	(Pl. CXL, 1)	61	− 7·6
Copper Fish-hook	(Pl. CXXI, 11)	61	− 6·7
Frag. Vitreous Bangle	(Pl. CXL, 57)	60	− 3·1
House VII.			
Limestone Marble or Pin-head	(Pl. CXLII, 71)	57	−16·5
Steatite Pin-head	(Pl. CXXXIX, 4)	57	−16·5
Pottery Toy	(Pl. LXXVIII, 12)	58	−10·6
Faience Gamesman	(Pl. CXXXVII, 7)	52	− 9·5
Pottery Antelope	(Pl. LXXVII, 2)	58	− 9·4

Object.	Plate and No.	Room.	Level. (Ft.)
House VIII.			
Pottery Rattle	(Pl. CXLII, 88)	16	−26·2
Rhinoceros Figure	(Pl. LXXIX, 2)	16	−26·5
Whetstone	(Pl. CIX, 17)	16	−25·0
Mace-head	(Pl. CIX, 28)	16	−24·1
Pottery Bull	(Pl. LXXIX, 30)	16	−24·1
Mace-head	(Pl. CIX, 27)	16	−23·9
Janus-like Head	(Pl. LXXVI, 8)	25	−22·1
Storage Jar	(Pl. LXIII, 4)	16	−21·0
Female (?) Figurine	(Pl. LXXVI, 17)	28	−20·8
Storage Vessel	(Pl. LXII, 48)	20	−20·4
Hammer-stone	(Pl. CXI, 80)	25	−19·7
Pottery Ram	(Pl. LXXX, 12)	20	−19·7
Female Figurine	(Pl. LXXV, 2)	28	−18·7
Copper Bangle	(Pl. CXLII, 23)	53	−18·1
Whetstone	(Pl. CIX, 20)	26	−16·4
Shell Ladle	(Pl. CXI, 90)	22	−16·3
Portion of Alab. Vessel	(Pl. CXLII, 43)	28	−14·8
Copper Knife	(Pl. CXXXI, 13)	28	−14·6
Pottery Bangle	(Pl. CXLII, 19)	20	−14·6
Pottery Hook	(Pl. CIX, 12)	22	−14·2
Storage Vessel	(Pl. LXII, 52)	53	−14·0
Pottery Group	(Pl. LXV, 25–27)	17	−13·8
Copper Ring	(Pl. CXLII, 11)	21	−13·5
Alabaster Horn	(Pl. CVIII, 35)	20	−13·4
Ivory Roundel	(Pl. CIX, 15)	19	−13·2
Spindle-whorl	(Pl. CV, 49)	25	−10·9
Agate Gamesman	(Pl. CXL, 4)	28	− 8·5
Copper Chisel	(Pl. CXXI, 22)	16	− 8·0
Pottery Cage	(Pl. CIV, 7)	16	− 7·0
Pottery Gamesman	(Pl. CXL, 2)	16	− 7·0
Limestone Gamesman	(Pl. CXXXVII, 1)	23	− 6·0
Barrel Weight	(Pl. CXXXVII, 15)	53	− 4·1
House IX.			
Pottery Bull	(Pl. LXXIX, 26)	29	−32·7
Pottery Bull	(Pl. LXXIX, 16)	29	−26·9
Cake Mould	(Pl. CIX, 2)	29	−21·0
Condiment Dish	(Pl. LXVI, 15)	31	−21·3
Ivory Fitting	(Pl. CIX, 3)	34	−19·6
Copper Knife	(Pl. CXXX, 19)	29	−19·5
Copper Arrow-head	(Pl. CXXVII, 9)	29	−17·0
Pottery Rasp	(Pl. CIX, 42)	29	−16·1
Female Figurine	(Pl. LXXV, 12)	31	−13·4
Stone Die	(Pl. CXLII, 85)	29	−13·2
Pottery Dove (?)	(Pl. LXXVII, 7)	30	−11·6
Block 8.			
House I.			
Pottery Group	(Pl. LXIV, 32–35, 45–48)	8	−12·8
Pottery Bull	(Pl. LXXIX, 25)	5	−12·1
Storage Jar	(Pl. LXIII, 10)	8	−12·0
Pottery Bowl	(Pl. LX, 64)	8	−12·0
Steatite Amulet	(Pl. CXXXVI, 75)	8	−11·9
Bronze Knife	(Pl. CXXII, 1)	4	−11·6
Cart Frame	(Pl. CVI, 38)	4	− 7·6
Ivory Cubical Gamesman	(Pl. CXXXVIII, 55)	8	− 7·6
Copper or Bronze Ring	(Pl. CXL, 49)	6	− 2·8
Copper or Bronze Knife	(Pl. CXIX, 2)	7	− 1·8

Object.	Plate and No.	Room.	Level. (Ft.)
House II.			
Ivory Die	(Pl. CXXXIX, 20)	16	−15·3
Male Figurine	(Pl. LXXVI, 23)	21	−14·1
Pottery Bull	(Pl. LXXVIII, 5)	17	− 7·2
Pottery Ball	(Pl. CXL, 29)	21	− 6·2
Faience Button	(Pl. XCI, 29)	46	− 5·6
House III.			
Ivory Hair-pin	(Pl. XCI, 27)	31	−12·2
Pottery Dove	(Pl. LXXVII, 11)	50	−11·8
Chert Burnisher	(Pl. CV, 19)	30	−11·5
Ivory Awl	(Pl. CV, 11)	37	−11·0
Seal	(Pl. LXXXVIII, 309)	31	−10·3
Pottery Rasp	(Pl. CV, 39)	38	−10·2
Copper Knife	(Pl. CXX, 12)	28	− 9·2
Head of Bull	(Pl. LXXVIII, 6)	47	− 9·1
Pottery Tablet	(Pl. CV, 37)	30	− 8·8
Ivory Awl	(Pl. CV, 12)	29	− 8·6
Copper Fish-hook	(Pl. CXXI, 14)	30	− 8·4
Incised Ivory Plaque	(Pl. CV, 44)	31	− 8·3
Bronze Razor	(Pl. CXXV, 36)	12	− 6·9
Pottery Cone	(Pl. CXXV, 29)	47	− 6·7
Pottery Ornament	(Pl. CXXV, 26)	25	− 6·3
Copper Chisel	(Pl. CXVII, 6)	25	− 6·3
Steatite Pin-head	(Pl. CXXV, 31)	47	− 5·9
Pottery Dove	(Pl. LXXVII, 5)	46	− 4·8
Pottery Bird	(Pl. LXXVII, 12)	46	− 4·3
Ivory Comb	(Pl. XCI, 26)	30	− 4·0
Pottery Animal	(Pl. LXXVIII, 7)	30	− 3·2
Shell Jar-lid	(Pl. CV, 36)	48	− 2·6
Shell Spindle-whorl	(Pl. CVII, 10)	31	− 2·9
Block 8A.			
Copper Knife	(Pl. CXX, 14)	45	− 8·7
Limestone Cone	(Pl. CIV, 3)	42	− 8·2
Figure of Monkey	(Pl. LXXVIII, 4)	45	− 8·2
Ivory Object	(Pl. CXXXVIII, 42)	44	− 8·1
Chert Rolling Pin (?)	(Pl. CIV, 10)	42	− 7·7
Pottery Scale-pan	(Pl. CV, 40)	35	− 6·9
Alabaster Jar-cover	(Pl. CV, 28)	44	− 6·1
Saddle-quern	(Pl. CIV, 13)	44	− 6·1
Copper Knife	(Pl. CXX, 4)	45	− 5·3
Female Figurine	(Pl. LXXIII, 2)	44	− 4·8
Steatite Button	(Pl. CXXV, 21)	44	− 4·5
Stone Bangle	(Pl. CXXXVI, 85)	41	− 4·3
Bronze Fish-hook	(Pl. CXXI, 24)	41	− 4·2
Polished Stone	(Pl. CIV, 9)	45	− 4·2
Cake-mould	(Pl. CV, 45)	44	− 4·0
Copper Spoon (?)	(Pl. CXXI, 37)	44	− 4·0
Steatite Ram	(Pl. LXXVII, 8)	33	− 3·9
Faience Ring	(Pl. CXL, 51)	36	− 2·2
Stone Stud (?)	(Pl. CV, 27)	36	− 2·1
Block 9.			
House I.			
Pottery Runnels	(Pl. CIV, 19)	48	−11·1
Pottery Tablet	(Pl. CV, 23)	34	− 5·2
Spindle-whorl	(Pl. CVI, 22)	50	− 3·4
Faience Squirrel	(Pl. LXXVII, 20)	47	− 3·4
Frag. Alabaster Vessel	(Pl. CV, 52)	27	− 1·7

Object.	Plate and No.	Room.	Level. (Ft.)
House II.			
Pottery Animal	(Pl. LXXXI, 18)	11	– 13·1
Pottery Gamesman	(Pl. CXXXIX, 17)	11	– 13·1
Bronze Dog	(Pl. LXXIX, 6)	9	– 12·2
Bronze foot	(Pl. LXXIII, 5)	8	– 4·3
House III.			
Pottery Dog	(Pl. LXXIX, 11)	35	– 15·8
Pottery Whistle	(Pl. CXLII, 79)	35	– 14·2
Stone Rubber	(Pl. CV, 51)	26	– 11·0
Seal	(Pl. LXXXVII, 245)	29	– 8·8
Copper Knife	(Pl. CXX, 16)	30	– 4·9
Male Figurine	(Pl. LXXII, 8–10)	30	– 4·9
Pottery Whorl	(Pl. CV, 46)	30	– 4·5
Pottery Animal	(Pl. LXXVII, 18)	29	– 1·9
Copper Knife	(Pl. CXIX, 3)	29	– 1·8
House IV.			
Sealing	(Pl. XCI, 20)	2	– 9·4
Seal	(Pl. LXXXIX, C)	6	– 8·4
Steatite Button	(Pl. XCI, 35)	6	– 6·8
Bronze Ram	(Pl. LXXVII, 15)	6	– 6·8
House VI.			
Pottery Runnel	(Pl. CVIII, 29)	79	– 20·4
Storage Vessel	(Pl. LXII, 46)	32	– 19·4
Pottery Cone	(Pl. CIX, 33)	32	– 19·4
Pottery Rolling-pin	(Pl. CVIII, 23)	32	– 19·4
Horned Mask	(Pl. LXXVI, 2)	78	– 18·6
Drain-pipe	(Pl. CVIII, 30)	34	– 15·7
Shell Cone	(Pl. CVIII, 6)	34	– 15·4
Seal	(Pl. XCVI, 510)	34	– 15·2
Storage Vessel	(Pl. LXII, 49)	17	– 13·7
Bone Gamesman	(Pl. CXL, 27)	36	– 11·5
Female Figurine	(Pl. LXXV, 10)	34	– 14·4
Copper Knife	(Pl. CXX, 25)	36	– 11·5
Pottery Jar	(Pl. LVI, 27)	78	– 9·8
Storage Jar	(Pl. LVIII, 14)	41	– 9·5
Ivory Hair-pin	(Pl. XCI, 28)	36	– 9·1
Mace-head	(Pl. CIV, 1)	79	– 9·0
Pottery Plaque	(Pl. CIV, 11)	79	– 8·4
Alabaster Object	(Pl. CIV, 15, 17)	32	– 7·2
Pottery Slide (?)	(Pl. CIV, 6)	79	– 6·7
Bronze Dagger	(Pl. CXX, 19)	36	– 6·6
Copper Spear-head	(Pl. CXVII, 8)	36	– 6·6
Sealing	(Pl. XCI, 4)	31	– 6·6
Faience Stud	(Pl. CXL, 61)	79	– 6·1
Bronze Chisel	(Pl. CXXI, 13)	36	– 5·8
Bronze Axe	(Pl. CXX, 26)	36	– 5·8
Pottery Gamesman	(Pl. CXL, 24)	31	– 5·8
Copper Razor (?)	(Pl. CXIX, 6)	36	– 5·7
Shell Ladle	(Pl. CV, 26)	36	– 5·6
Crystal Marble	(Pl. CXL, 28)	30	– 5·5
House VII.			
Copper Vase	(Pl. CXXXII, 2)	48	– 20·7
Cake-mould	(Pl. CIX, 1)	47	– 20·0
Pottery Animal	(Pl. LXXIX, 3)	48	– 18·5
Pottery Rattles	(Pl. CXLII, 80, 81)	17	– 15·4

Object.	Plate and No.	Room.	Level. (Ft.)
Pottery Bulla	(Pl. CXLII, 2)	17	−14·4
Lead Casting	(Pl. CXXXIII, 13)	17	−12·8
Storage Jar	(Pl. LXIII, 5)	17	−12·1
Copper Chisel	(Pl. CXXI, 7)	17	−11·5
Copper or Bronze Ring	(Pl. CXL, 45)	51	−10·5
Copper Knife	(Pl. CXX, 22)	17	− 9·6
Pottery Bull	(Pl. LXXVIII, 1)	17	− 9·1
Steatite Pectoral	(Pl. CXL, 59)	21	− 7·5
Sealing	(Pl. XCI, 12)	16	− 5·9
Stone Pedestal	(Pl. CIV, 26)	18	− 4·8
House VIII.			
Pottery Tube	(Pl. CIX, 53)	16	−19·8
Pottery Rasp	(Pl. CIX, 50)	16	−19·8
Bronze Kohl-pot	(Pl. CXXXII, 5)	16	−19·8
Sealing	(Pl. CI, 1)	16	−19·4
Pottery Object	(Pl. LXXVI, 26)	18	−16·6
Pottery Bird-chariot	(Pl. LXXXI, 17)	18	−14·6
Pottery Animal	(Pl. LXXIX, 8)	18	−14·3
Horned Mask	(Pl. LXXIV, 22)	18	−13·4
Horned Mask	(Pl. LXXVI, 1)	18	−13·4
Ivory Roundel	(Pl. CIX, 4)	18	−12·9
Seal	(Pl. LXXXIX, 347)	21	−11·0
Pottery Rasp	(Pl. LIV, 14)	15	−10·7
Faience Monkey	(Pl. LXXVIII, 2)	20	−10·2
Antler Handle	(Pl. CV, 56)	51	−10·3
Pottery Trap	(Pl. LIV, 20–22)	15	− 9·8
Pottery Gamesman	(Pl. CXL, 7, 15)	15	− 9·1
Pottery Gamesman	(Pl. CXXXIX, 15, 19)	15	− 9·1
Shell Spindle-whorl	(Pl. CV, 41)	15	− 8·9
Ivory Comb	(Pl. XCI, 25)	46	− 8·0
Faience Gamesman	(Pl. CXL, 14)	21	− 7·5
Faience Gamesman	(Pl. CXXXVII, 5)	21	− 7·5
Stone Gamesman	(Pl. CXL, 18)	49	− 7·2
Pottery Toilet Jar	(Pl. LVI, 7)	20	− 6·9
Seal	(Pl. LXXXV, 133)	20	− 6·8
Bronze (?) Knife	(Pl. CXX, 24)	10	− 6·7
Copper Razor	(Pl. CXXI, 41)	16	− 6·4
Faience Ornament	(Pl. CXL, 40)	16	− 6·4
House IX.			
Copper Spear-head	(Pl. CXX, 9)	67	−12·2
Ivory Plaque	(Pl. CV, 57)	68	−11·8
Faience Dog	(Pl. LXXVII, 19)	65	−11·5
Faience Ram	(Pl. LXXVII, 9)	66	−10·8
Hair-pin Head	(Pl. XCI, 33)	62	− 8·5
Shell Gamesman	(Pl. CXL, 3)	65	− 8·6
Steatite Bobbin	(Pl. CV, 33)	63	− 8·4
Faience Gamesman	(Pl. CXL, 11)	65	− 7·3
Ivory Gamesman	(Pl. CXL, 13)	65	− 7·3
Limestone Cone	(Pl. CIV, 25)	66	− 6·4
Limestone Weight	(Pl. CV, 6)	56	− 6·4
Copper Bangle	(Pl. CXXXVI, 98)	87	− 6·4
House X.			
Seal	(Pl. LXXXIX, 360)	80	−11·6
Flint Core	(Pl. CV, 18)	54	−11·5
Bronze Knife	(Pl. CXX, 5)	80	−11·0
Painted Jar	(Pl. LVIII, 7)	55	− 9·1

Object.	Plate and No.	Room.	Level. (Ft.)
Bronze Dancing-girl	(Pl. LXXIII, 9–11)	81	– 8·6
Glazed Gamesman	(Pl. CXXV, 27)	82	– 8·4
Paste Gamesman	(Pl. CXL, 17)	82	– 8·4
Copper Chisel	(Pl. CXXI, 30)	86	– 8·4
Offering Stand	(Pl. LVII, 31)	83	– 8·2
Agate Gamesman	(Pl. CXL, 12)	86	– 8·2
Male Figurine	(Pl. LXXII, 3)	81	– 6·7
Shell Head of Bull	(Pl. LXXIV, 11)	85	– 6·6
Shell Ladle	(Pl. CV, 21)	86	– 7·8
Pottery Rattle	(Pl. CXL, 21)	85	– 7·0
Faience Ornament	(Pl. CXXXVIII, 18)	86	– 6·5
Chalcedony Gamesman	(Pl. CXL, 10)	55	– 5·6
Frag. Faience Vase	(Pl. CV, 34)	88	– 5·6
Pottery Dove (?)	(Pl. LXXVII, 3)	83	– 5·2
Shell Ornament	(Pl. CXXXVI, 70)	55	– 3·9
Pottery Gamesman	(Pl. CXL, 23)	55	– 1·7
House XI.			
Faience Button	(Pl. XCI, 30)	75	– 8·4
House XII.			
Bone Awl	(Pl. CV, 10)	93	– 11·9
Storage Vessel	(Pl. LVII, 43)	94	– 10·1
Pottery Die	(Pl. CXL, 19)	94	– 9·0
Breccia Gamesman	(Pl. CXL, 5)	90	– 7·9
Pottery Toy	(Pl. LXXVIII, 9)	90	– 6·9
Shell Gamesman	(Pl. CXL, 8)	92	– 6·1
Twisted Sealing	(Pl. XCI, 23, 24)	90	– 5·3
Male Figurine	(Pl. LXXIV, 17)	90	– 4·4
Copper Knife	(Pl. CXX, 10)	92	– 3·8
Block 9A.			
Pottery Toy	(Pl. LXXXI, 9)	67	– 20·2
Seal	(Pl. XCVIII, 641)	75	– 20·0
Copper Bolt	(Pl. CXXXII, 8)	75	– 19·1
Copper Razor	(Pl. CXXVIII, 13)	75	– 18·3
Copper Bangle	(Pl. CXXXIX, 24)	75	– 16·6
Pottery Bird	(Pl. LXXX, 18)	66	– 14·5
Pottery Gamesman	(Pl. CXL, 9)	50	– 12·3
Copper Knife or Dagger	(Pl. CXX, 21)	67	– 11·3
Shell Spindle-whorl	(Pl. CV, 48)	67	– 11·3
Female Figurine	(Pl. LXXIII, 12)	45	– 11·0
Seal	(Pl. LXXXVIII, 279)	75	– 9·5
Copper Chisel	(Pl. CXXI, 10)	80	– 9·1
Pottery Die	(Pl. CXL, 20)	68	– 9·1
Copper Knife or Dagger	(Pl. CXX, 15)	46	– 7·8
Shell Rod	(Pl. CV, 59)	46	– 7·4
Copper Sword	(Pl. CXX, 17)	53	– 5·5
Block 10.			
House I.			
Pottery Bird's Head	(Pl. LXXXI, 4)	6	– 29·7
Steatite Ring	(Pl. CXXXIX, 14)	11	– 22·0
Copper Drill (?)	(Pl. CXXXI, 6)	4	– 22·3
Female Figurine	(Pl. LXXVI, 13)	11	– 20·7
Copper Bolt	(Pl. CXXXI, 25)	5	– 18 4
Pottery Animal	(Pl. LXXIX, 7)	2	– 18·3

Object.	Plate and No.	Room.	Level. (Ft.)
Silver Castings	(Pl. CXXXII, 22, 32)	2	−17·8
Frag. of Alabaster Bowls	(Pl. CXLIII, 3, 4)	5	−16·0
Alabaster Vessel	(Pl. CXLIII, 11)	5	−15·4
Copper Awl	(Pl. CXXXI, 11)	2	−13·9
Faience Monkey	(Pl. LXXX, 3)	5	−12·6
Chalcedony Gamesman	(Pl. CXLII, 53)	4	−12·3
Condiment Dish	(Pl. LXVI, 12)	2	−12·0
Ivory Gamesman	(Pl. CXL, 25)	4	−11·3
Pottery Bird	(Pl. LXXVII, 6)	3	−10·9
Copper Chisel	(Pl. CXXIV, 20)	8	− 8·3
House II.			
Copper Knife	(Pl. CXXXIII, 11)	20	−16·5
Copper Jar-cover	(Pl. CXXIV, 28)	26	− 8·9
House III.			
Storage Jar	(Pl. LXIII, 14)	58	−18·8
Perforated Vessel	(Pl. LXII, 29)	63	−18·2
Alabaster Wavy-ring	(Pl. CIX, 39)	67	−16·8
Limestone Weight	(Pl. CXI, 73)	67	−13·5
Female Figurine	(Pl. LXXIII, 3)	64	− 9·7
Copper Bangle	(Pl. CXL, 53)	64	− 5·7
House IV.			
Offering Stand	(Pl. LX, 7)	75	−23·9
Bone Awl	(Pl. CIX, 9)	71	−18·2
Copper Needle	(Pl. CXXXIII, 9)	82	−15·5
Pottery Whorl	(Pl. CIX, 52)	73	−13·6
Storage Vessel	(Pl. LVIII, 12)	87	−11·7
Faience Ornament	(Pl. CXL, 38)	78	−10·7
Pottery Goose (?)	(Pl. LXXVII, 10)	73	−10·5
Seal	(Pl. LXXXVIII, 278)	73	− 9·5
Copper Awl	(Pl. CXXI, 8)	72	− 7·3
Faience Gamesman	(Pl. CXL, 16)	70	− 6·6
Faience Button	(Pl. XCI, 32)	70	− 5·0
Copper Knife	(Pl. CXXIII, 4)	70	− 4·9
Block 10A.			
Saddle Quern	(Pl. CIX, 36)	5	−21·7
Pottery Ball	(Pl. CXLII, 76)	7	−17·3
Male Figurine	(Pl. LXXVI, 16)	7	−17·0
Block 11.			
House III.			
Female Figurine	(Pl. LXXVI, 20)	25	−20·2
Flooring or Roof Plaster	(Pl. CVIII, 17)	34	−18·3
Alabaster Gamesman	(Pl. CXI, 88)	25	−18·2
Faience Pin-head	(Pl. C, 9)	27	−17·8
Copper or Bronze Hair-pin	(Pl. C, 7)	27	−17·0
Mace-head	(Pl. CX, 36)	41	−17·6
Pottery Bulla	(Pl. CXLII, 1)	34	−15·3
Chert Burnisher	(Pl. CV, 17)	29	−10·9
Shell Ball	(Pl. CXL, 30)	29	− 7·9
Block 12.			
House I.			
Bronze Chisel	(Pl. CXXXIII, 4)	11	−20·1
Copper Point	(Pl. CXXXI, 19)	11	−21·4

Object.	Plate and No.	Room.	Level. (Ft.)
Copper Point	(Pl. CXXVIII, 8)	11	-21·0
Copper Bolt	(Pl. CXXXI, 24)	11	-21·0
Bronze Bolt	(Pl. CXXXI, 26)	11	-21·0
Silver Seal	(Pl. XCVI, 520)	4	-15·4
Pottery Dove	(Pl. LXXX, 27)	11	-13·2
Bronze (?) Dog	(Pl. LXXVII, 16)	11	-11·9
Bronze Hook	(Pl. CXXI, 43)	11	-11·9
Copper Chisel	(Pl. CXXIV, 25)	11	-11·0
Pottery Group	(Pl. LIX, 29, 30)	1	- 7·8
Mortar	(Pl. CIV, 24)	10	- 7·2
House V.			
Copper Arrow-head	(Pl. CXXXII, 29)	100	-22·1
Ivory Fish	(Pl. CXLIII, 34)	95	-20·1
Agate Marble	(Pl. CXLII, 77)	93	-18·5
Part of Alabaster Vessel	(Pl. CXLII, 50)	97	-17·6
Shell Bull's Head	(Pl. LXXIX, 28)	97	-17·1
Copper Axe	(Pl. CXXVII, 3)	97	-15·4
Bone Awl	(Pl. CIX, 7)	96	-13·2
Copper Sickle (?)	(Pl. CXXXI, 14)	96	-12·6
Copper Casting	(Pl. CXXXIII, 15)	96	-12·6
Male Figurine	(Pl. LXXIII, 1)	95	-11·7
Mace-head	(Pl. CIV, 2, 4)	96	-11·1
Faience Gamesman	(Pl. CXL, 26)	96	-10·9
Seal	(Pl. LXXXVIII, 280)	95	- 9·7
Copper Chisel	(Pl. CXXI, 23)	90	- 8·6
Block 12A.			
House I.			
Copper Axe	(Pl. CXXVI, 4)	15	-24·4
Copper Mass	(Pl. CXXXII, 34)	15	-24·4
Portion of Copper Ingot	(Pl. CXXXII, 35)	15	-24·4
Copper Spear-head	(Pl. CXXVII, 1)	15	-24·4
Bronze Axe	(Pl. CXXVI, 5)	15	-24·4
Bronze Axe	(Pl. CXXVII, 2)	15	-24·4
Copper Axe	(Pl. CXXVI, 3)	15	-24·4
Copper Spear-head	(Pl. CXXXI, 39)	15	-24·4
Bronze Ingot	(Pl. CXXXII, 33)	15	-24·4
Copper Casting	(Pl. CXXXI, 30)	15	-24·4
Bronze Chisel-tang	(Pl. CXXVI, 2)	15	-24·4
Broken Copper Ingot	(Pl. CXXXI, 32)	15	-24·4
Copper Chisel	(Pl. CXXX, 15)	17	-21·9
Male Figurine	(Pl. LXXV, 11)	17	-20·5
House II.			
Marble Seal	(Pl. XCV, 479)	21	-14·3
Copper Axe	(Pl. CXX, 29)	22	- 8·6
Pottery Animal	(Pl. LXXVIII, 11)	21	- 8·0

Chapter VI.

DK AREA, G SECTION, NORTHERN PORTION.

The excavation of the Northern Portion of the DK Area (G Section) was commenced early in November, 1930, and was discontinued owing to the onset of the hot weather in the middle of March, 1931. It was intended to resume excavations here in the following season, but owing to financial difficulties this proved to be impossible.

This portion is bounded on the north by the slope of the mound which, however, we did not reach (Pl. I). On the south the important thoroughfare Central Street affords a definite boundary, and the still wider First Street on the east. The western part of the mound slopes more or less gradually to the level of the plain, and in this direction a considerable amount of clearance was done.

Save here and there where it seemed advisable to explore foundations, no clearance was done below the ground-level of the Late II Phase. None the less, as the following pages will show, we have obtained ample proof that in this part of the mound were situated buildings as important as any hitherto discovered at Mohenjo-daro. It is, therefore, all the more to be regretted that lack of funds has prevented—we hope only for the present—further examination of what must have been a very important quarter of Mohenjo-daro.

Our comparatively brief period of work here was amply rewarded by many important finds, chief among which are three hoards of copper and bronze, and, perhaps most important of all, the shell scale illustrated in Pls. CVI, 30; CXXV, 1. The latter is of outstanding importance as it links up a system of measurement used in mediæval Europe and elsewhere with ancient India.

Blocks 13, 14, 15, 16, 17 and 29 (*Pls. X, a, e–h; XI, a–d; XII, b, e; XIII; XIV*).

The houses in Blocks 13–17 and 29 mostly date from the Late Ib or Ia Phases. They stand at various levels, those in Blocks 13 and 29 being considerably lower than the others. The majority of the houses in Block 14 and the southern portions of Blocks 15 and 16 were built on rubble; there seem to be no older walls below. Taking into account also the lack of alignment with each other of many of these houses, which is especially noticeable in Blocks 13, 14 and the southern part of Block 15, it seems likely that they were built on made ground in an attempt to house the growing population of the city. The very irregular alignment of the lane between Blocks 14 and 15 is markedly at variance with the careful town-planning of the earlier periods of the city; it betokens progressive deterioration not only in the art of building but in the adminstration of the city also.

Three of the houses on the western side of this lane and two on the eastern side are curiously arranged in serrated fashion, as one sees in the lower quarters of Alexandria in Egypt to-day, so that it would have been possible to look along the street from small upper windows in the end walls, assuming, of course, that the upper storeys overhung the street (Pl. XIII, C).

As the doorways and rooms are so well preserved in these blocks, though the houses in general are poorly built, a detailed description of them in addition to the plans would be superfluous and only points of especial interest need be noted.

Block 29 (*Pl. XIII, C*).

Of the two houses of this block, the southern one (I) is practically complete, but little remains of the small house (II) to the north. No pavements have survived, but the door-sills are an average level of 6·8 ft. below datum—the Late II level in the older parts of the mound. Owing to the poorness of the masonry, however, we must regard these two houses as of Late Ib or even Late Ia date, but erected on lower ground, as suggested above.

Block 13 (*Pls. XIII ; XIV*).

There seem to have been three houses in this block, but owing to its close proximity to a water-cut ravine due to the debouching of Central Street into the plain, House I has almost disappeared. These three houses also stood on slightly lower ground, and though their doorways are at the average level – 8·9 ft. they must be regarded as of Late Ib date, possibly re-used in Late Ia times, rather than dated to the Late III or even the Late II Phase.

A well-preserved staircase in House II, 2 ft. 4 ins. wide, still has seven treads, each 7·5 ins. wide by 9·5 ins. high (Pl. XIII, C). Whether this stairway led to an upper storey or to the roof, it is now impossible to say. A wall that partially blocks it on the east is probably of Late Ia date. This house was entered from the west by a doorway, 3 ft. 9 ins. wide, from which a corridor (4) leads along the southern side of the house and then turns northwards into the courtyard(?) 9.

House III is so badly damaged that its arrangement is difficult to determine, but the remains of thick walls suggest that its foundations rested on masonry of the Late II Phase.

Block 14 (*Pls. X ; a, e, f ; XII, b ; XIII ; XIV*).

Block 14 comprises four houses, three of which are more or less complete with their door-sills of Late Ib date all practically at the same level, namely, – 3·3 ft. (Pl. XIII, C).

House I has, however, mostly disappeared for the same reason as House I of Block 13. Its well, which is 2 ft. 10 ins. in diameter inside, is very roughly lined, the broken top of the steening being now 8 ft. below datum. As the portion of the steening above ground is exceptionally poorly built, it must be attributed to the Late Ia Phase. A strip of paving west of this well at the level – 7·6 ft. is presumably of the same date.

To this period also may be assigned a privy in room 18 of House III (Pl. XII, b). This was entered in Late Ib times by means of a doorway 2 ft. 9 ins. wide; but in the Late Ia Phase, owing to the rise of the floor-level of the house, a stairway, 1 ft. 11 ins. wide, with treads 6·5 ins. broad and 9 ins. high, was set in the earlier doorway to keep the privy still in use (Pl. XIII, A C). The floor of this office is 2·8 ft. below datum at the east with a drop of 3 ins. towards the west. The water used to wash it down ran away through a small

aperture, about one inch wide, in the north-west corner of the room. A chute, 10 ins. in width, set in the middle of the western wall of this little office was partially roofed over with an exceptionally large brick. This latrine when perfect must have been very similar in appearance to one in room 15 of House III, Block 23 (Pl. XXII, 1), of which there is a photograph below that of the one just described.

At the western side of room 19 of House III at a depth of 4·8 ft. below datum, the finest assemblage of copper and bronze tools and other objects (Group A) that has been found at Mohenjo-daro lay buried closely packed together at about the sill-level of a blocked-up doorway. This room is seen on the right hand side of the photograph a in Pl. X, and a close-up of the group in Pl. X, e, f. After these objects (forty in number) were cleaned and separated, they were both drawn and photographed (Pls. LXXIV, 18, 19 ; CXIII ; CXIV ; CXV, 1–9 ; CXVIII, 2, 4, 5, 6, 10, 11, 13–17, 19–21). They can definitely be dated to the Late Ib Phase as are two other groups, shortly to be mentioned, that were found in Block 15.

Block 15. *(Pls. X, g, h ; XI, a, b ; XII, e; XIII ; XIV).*

This long block consists of a single row of houses bounded on the east by West Street and on the west by a lane that is properly aligned only at its northern end, where it is 3 ft. 10 ins. wide, and gradually becomes wider and more irregular towards the south. This lack of proper alignment is perhaps due to the builders of the houses at the southern end of this block having no ancient walls to guide them for a distance of 95 ft. from Central Street. In fact, they built on rubble, any earlier masonry that may have existed having either been swept away by the floods that terminated the Late III Phase, or removed by brick-robbers.

The photographs a and b in Pl. XI show clearly how the houses of this block were drained into West Street during the Late II and following phases.

House I, whose south-eastern corner is seen in these two photographs, is sadly damaged. A small well (Pl. XII, e), 2 ft. 5 ins. in diameter inside, is surrounded by a neatly laid pavement, two courses thick, at the level 7·3 ft. below datum, which, therefore, dates from the Late II Phase. The bricks in the remarkably well-preserved coping are wedge-shaped and measure 11·1×5–5·4×2·15 ins., and the doorway in the northern wall of the well-room is 3 ft. 4 ins. wide. As the photograph shows, the western wall of the well-room was at some unknown period removed by brick-thieves, so that we shall never know whether there was a second doorway here or not. At this phase, the waste water escaped from the pavement of the well-room into a small bricklined pit, and thence through two small channels into the main drain of Central Street.

In the Late Ib Phase, when the ground-level had risen, a flight of steps was built to lead down into the well-room, a procedure that we have seen was adopted in another part of the DK Area.[1] The top of this stairway is now 4·1 ft. below datum. The pavement of this phase was drained towards the east into a channel in West Street (Pl. XI, a).

In House IV, a block of masonry on the inside of the eastern wall of the room or courtyard 15, 16 is probably the filling of a doorway of the Late II Phase.

[1] The well-room in Block 8A.

Only one jamb of this door is visible on the outside; the other was probably bonded in during the Late Ib Phase when repairs were made in the wall to the north of it. Another doorway of Late II date, 4 ft. wide, in the western wall of room 17 was also blocked up and surmounted by later brickwork in the subsequent phases. The arrangement of this house during the Late II Phase unfortunately cannot be exactly determined without further clearance, but it appears to have been altered considerably in the Late Ib and Ia Phases (Pl. XIII).

There appears to have been an entrance, 3 ft. 9 ins. wide, into House V from the west through room 25, but this too was apparently blocked up in the Late Ia Phase, when the house was entered from the east. This door is, therefore, not shown in Pl. XIII, A.

There is no trace left of the entrance to House VI in the Late II Phase (Pl. XIII, C); but that this house was subdivided into two parts in the Late Ia Phase is shown by the existence of two doorways from West Street at that time (Pl. XIII, A). The southern and larger of these doorways appears to have been in use in the Late II Phase, but the repairs made subsequently make this uncertain; this door is, therefore, not shown in the Late II plan.

In room, or perhaps court, 28 of this house were found two hoards of bronze and copper vessels and other objects. One of them (Group B), shown *in situ* in Pl. X, g, lay below a bin-like erection in the north-eastern corner at a depth of 5·7 ft. below datum. A little to the west of it, a larger hoard (Group C) at the level − 7·1 ft. comprised a number of tools and vessels (Pl. X, h). Both these hoards are fully described and illustrated in Chapter XIII.[1] From the fact that Group B lay just beneath and close to a part of the wall that had obviously been raised, we must assign it to the Late Ib Phase, and the companion hoard also.

If room 28 was a courtyard, as seems likely, the people who buried these hoards showed a certain amount of acumen in choosing this position. When they left their house, obviously with the intention of returning, it was hardly likely that any trespassers who might have surmised that objects of value had been left behind would search the court for valuables; the living-rooms would have been much more likely to engage their attention.

Block 16 (*Pls. XIII; XIV*).

Block 16 is bounded on the north by an alley, 4 ft. 8 ins. wide, and on the east by a rather narrower one. Its western boundary is uncertain owing to the denudation which took place here, but there was certainly once another house (House I), of which only a few isolated walls remain. In the south-eastern corner of the irregular enclosure (11) between this group of houses and Block 14, there is a well, 3 ft. 3 ins. in diameter inside, which seems to have been in public use until at least the end of the Late Ib Phase. The broken top of its 10 ins. thick steening is very irregular and it had been shored up with masonry on the eastern side. This enclosure seems to have been annexed in the Late Ia Phase by someone who built a four-roomed house upon it (Pl. XIII, A)

[1] Pls. CXV, 10–16; CXVI; CXVII, 1–4; CXXXV

In the Late Ib Phase (Pl. XIII, C), rooms 12–14 seem to have formed part of the courtyard of House II, but in the Late Ia Phase they were cut off from it by a thin partition wall that rests on rubble. In this phase they were entered direct from the lane to the east by a door whose sill, like those of the doors in the two cross-walls, was some 3·3 ft. below datum. The other doorways of this house, and also those of House III, are of Late Ib date, ranging between 4·5 and 5 ft. below datum. When these two houses were re-used in the succeeding phase, rooms 15 and 18 of House II were thrown into the courtyard 17, 19 to compensate for the cutting-off the southern portion (Pl. XIII, A).

A small edged pavement in the south-eastern corner of room 18 at the level – 4·4 ft. was of Late Ib date. It communicated through a small aperture in the wall with the lane outside, where there was probably a drain, and its purpose is obvious from the thin wall that screened it from people entering the house (Pl. XIII, C).

Block 17 (*Pls. XI, C, d; XIII; XIV; XXII, 8*).

House I of this block is situated on lower ground than, and seems never to have had any connection with House II, the apparent doorways in the plan (Pl. XIII, C) being in reality breaks in the wall. All the doorways, except the one from the courtyard 4 into room 8, are an average level of – 8·6 ft., the deviation from this figure being practically negligible. The doorway excepted is at the level – 7·4 ft. and may have been made in the Late Ia Phase.[1] In the southern half of room 8 there is a well-laid pavement of two courses of brick at the level – 7·4 ft.

The three doorways in House II vary in level from – 6·1 to – 6·9 ft. and average 3 ft. 4 ins. wide. There seems also to have been a doorway leading into room 17 from the main portion of the house, but, beyond this room still further excavation requires to be done. A smaller pavement at the southern end of the corridor-like apartment 10 is 6·8 ft. below datum, and a rectangular pillar, 4×3 ft. in section, shows that at least a portion of this corridor was roofed.

The masonry of four of the walls of 1, 12 and 17 is unique in character. Ranging from 1 ft. 8 ins. to 2 ft. 4 ins. in thickness, they are built of odd-sized fragments of brick alternating with courses of equal thickness of a mixture of mud and potsherds of small size (Pl. XXII, 8). The effect is quite ornamental. The foundation levels of these walls show them to be of Late Ia date, or possibly even later.[2]

House III which is separated from Block 16 by a lane, 4 ft. 8 ins. wide, is rectangular in shape with a range of small rooms at either end of a central courtyard. Its interior walls mostly rest on rubble and are all very much patched up. In the Late II Phase (Pl. XIII, C) the house was entered from the lane by a doorway 4 ft. wide, leading into room 26. This door was blocked up in the Late Ib Phase and an entrance substituted for it by way of room 18. In the Late Ia Phase (Pl. XIII, A), however, the new owner of the house made another doorway into room 26, the same width as the earlier one but slightly further to the east.

[1] For the same reason as in the case of Blocks 12, 13 and 14, House I is more probably of Late Ib than of Late II date. This is also indicated by the coarseness of the masonry.

[2] There is a small patch of similar masonry high up in the northern wall of Long Lane that separates Block 11 from Block 10A in the Southern Portion of our excavations.

Building IV presents a most interesting problem. As is seen in Pl. XIII, C, the walls of the Late II Phase were very thick, and no traces of doorways remained either inside or out, perhaps owing to brick-robbing and subsequent rebuilding; the remains of these walls reach an average level of 4·3 ft. below datum. On them other walls were built with the sills of the well-made doorways an average of 1·1 ft. below datum (Pl. XIII, A). These doors probably date from the Late Ia Phase, though for reasons to be given later there is still some doubt as to this dating.

The outside dimensions of this building are 41 ft. 6 ins. long, N.-S., by 23 ft. 4 ins. wide, not including rooms 42 and 43 to the north which seem to be part of an annexe to the original building.[1] There is the usual batter on the three free sides of the building. Between it and House III there is a space, 1 ft. 8 ins. wide, which shows that in the earliest phase of this building, at least, there was no connection between the two. In this narrow space there seems to have been a flight of steps, but they are so badly damaged that further examination is needed finally to settle the point.

The sill of a small doorway in the western wall of the building, which leads into room 33 from the top of this apparent stairway, is only 1·4 ft. below datum. Just inside it to the right as one enters (Pl. XIII, A) is a remarkably steep stairway, 3 ft. 6 ins. wide, with very narrow treads, 11 ins. high and 7 ins. broad. This stairway would have been most awkward for domestic purposes, and it strongly suggests the ascent to a watch-tower. The floor of the room (34) to which this stair-case leads is 0·86 ft. above datum, and it must have been paved, as a broad chute, 1 ft. 6 ins. wide, served to drain it into the narrow passage to the west. Another paved floor (35) to the east of it served as a privy and bathroom combined, the former, as was usual, being built in the thickness of the southern wall with a vertical chute below. The ablution place, slightly lower and 2·7 ft. below datum, was drained by a sloping chute, immediately to the east of the vertical chute.

Room 42, as already mentioned, has a well-preserved pavement, 9 ft. 3 ins. long by 6 ft. 2 ins. wide, with an edging 2·5 ins. wide and high all round it at the very high level 0·22 ft. above datum (Pl. XIII, A). The bricks of which it is made, 9·6 by 5 by 2 ins. in size, were very carefully laid in three courses, and the surface is almost polished by friction and has a pronounced reddish-brown patina, as described on p. 166. Even the bricks of the two lower courses were most carefully dressed and rubbed down, which is very remarkable in this phase of the city's decadence. The eastern wall of this room is partially destroyed, but the water used to wash the pavement down, and possibly rain from the roof also, ran away through a large sloping chute, 1 ft. 10 ins. wide, in the thickness of the wall. Immediately to the south of this chute there is an open vertical channel, 9·5 ins. wide and 1 ft. 3 ins. deep, which probably drained a privy set in the thickness of the wall. The floor of this vertical chute is 5 ft. 1 in. below the level of the pavement of room 42 (Pl. XI, c, d, right hand side in each). Although owing to the high level of this building the walls of room 42 are badly damaged, the southern wall still stands 4 ft. 5 ins. high in places.

[1] The pavements of both these rooms are at a very high level and certainly seem to be later additions.

The pavement in room 43 measures 7 ft. 2 ins. long by 3 ft. 3 ins. wide and has an edging, 3 ins. high, all round it. Sawn bricks, 8·9 × 4·5 × 2 ins. in size, were used in its construction and rest on a layer, 2 ft. 2 ins. thick, of nodular refuse which probably came from the near-by brick-field outside the northern entrance of the city (First Street). This in turn rested on a layer, 3 ft. 6 ins. thick, of broken brick and rubble above the remains of a considerably older wall. This pavement is 0·72 ft. above datum.

These two rooms and the walls at a slightly lower level to the south of them can hardly date from the Late Ia Phase, despite their high level. The workmanship is much too good, and I am inclined to attribute this building—and especially the pavements—to the Late II, and certainly not later than the Late Ib Phase.

To the north-west of this building there is a heavy mass of brickwork based on rubble with a top layer of nodular refuse, like that beneath the pavement of room 43.

All the evidence that we have been able to gather pending further excavation suggests that the original building on this site was very lofty and substantial, with its rooms at a considerably higher level than those of the houses around. Its proximity to the outside of the city may have led its owner to raise a commanding structure, either for fear of floods or that it might catch every available breeze, a great consideration in the heat of the summer months. Or it may have been a watch-tower, which in such a situation would have commanded the down-river approach to the city[1] as well as two important entrances, namely the gateways of First and Central Streets. The substantial nature of the walls and the very careful laying of the pavements certainly suggest a building intended for official rather than private use.

Between these blocks and the rest of the Northern Portion of the DK Area, the important thoroughfare, West Street, runs well-nigh due north to south to debouch into Central Street, beyond which it does not go. This street is fully described in Chapter III.

Blocks 18 and 19 (*Pls. X, c, d; XI, a–e; XII, f; XIII; XIV*).

The most important feature of this Northern Portion of the DK Area is the great building (Bls. 18 and 19), one of whose massive walls forms the eastern side of West Street. This building was partially cleared during the season 1930-31, and it was intended to resume work on it the following season. It is to be hoped that the excavation of it will one day be resumed.

The continuity and approximately identical thickness of their western walls, together with the thinness of the party-wall between these two blocks make it well-nigh certain that they were a single building, of which Block 18 was built first and was subsequently enlarged by the addition of Block 19. The excavation of the Late I and II strata of the latter has yet to be completed; but, as its northern and eastern portions lie very close to the slope of the mound, I do not anticipate that it will be possible to complete the plan. Deeper clearance may, however, reveal the foundations of other walls not as yet indicated in Pl. XIII, C.

[1] I am presuming that the river ran close beside the city, a point which is discussed elsewhere.

The very large size of this building is remarkable. If the north-western corner of room 12 in Block 19 be taken as the corner of the building—the wall beyond this point is comparatively thin and not bonded into the thick wall to the south of it—the whole great structure is 242 ft. 6 ins. in length.[1] The western wall of Block 18 alone is some 177 ft. long. The frontage on Central Street is 111 ft. in length, and the northern end of Block 18 wider still, namely 114 ft. 6 ins. Block 18 alone, then, is larger than the Great Bath building,[2] which measures 179 ft. long by an average of 106 ft. in width.

It will be noticed that the lay-out is not strictly accurate, but it was probably made to accord with the slight divergence of West and First Streets from each other towards the north. These streets may have existed from a considerably earlier period.

The western wall which in places stands some 8 ft. above the level to which it has been cleared is the best preserved, and it is as much as 5 ft. 9 ins. in thickness as against the 4 ft. 6 ins. of the outer walls of the Great Bath building. The other outer walls are somewhat thinner, that along Central Street being 5 ft. wide, and the remaining two an average of 3 ft. 9 ins. They are, moreover, so badly damaged by the toll taken of them to provide bricks for other buildings that all traces of doorways on these sides have disappeared. The comparative thinness of the eastern and northern walls is perhaps due to the presence of other large buildings, in being or to be erected, close against them. The space between Block 18 and Blocks 21–23, which is 2 ft. wide at the Late II level, is much too small to admit of its having been used as a passage-way; indeed, if it were cleared further down it would be still narrower, owing to the batter of the walls on either side.

It has already been mentioned that no doorways have yet been found, save one in the western wall to room 96, which is 4 ft. 10 ins. wide on the outside and dates from the Late II Phase. This door was closed in the Late Ib Phase, and later still a drain was laid across the top of the blocking (Pl. XIII, A), presumably in Late Ia times. This can never have been the main door of so large a building, especially as it did not exist in the Late III Phase;[3] we must therefore look elsewhere. The southern façade is so badly wrecked that a door or doors might be postulated anywhere along its length (Pl. X, c, left hand side). A mass of tumbled bricks, however, very close to the south-east corner and in alignment with the remains of the ruined wall looks to me the most probable position. The close proximity of other buildings to the eastern wall does not admit, I think, of the possibility of an entrance being found there; and at the north further excavation will have to be made before the position of the doorway or doorways can be determined; though there must have been some means of communication between Blocks 18 and 19, if the latter was, as it appears to have been, an annexe to the former.

This great building seems to have been erected on a mud-brick platform, and this material was also used in many places to fill in the foundations. Many of the thicker walls go down below the level to which we have excavated, and I am inclined to think that the original building will prove to date from the

[1] I am of the opinion that deeper excavation will show the building to extend even beyond this point.

[2] Marshall, *Mohenjo-daro and the Indus Civilization*, pp. 131–145, pl. XXII.

[3] There is, of course, the possibility that repairs have entirely concealed an earlier doorway here.

Intermediate Period. It was probably restored and perhaps altered in the Late III Phase, and again in Late II days, after which time it fell into disuse and poorly built houses that still obscure its design were built among its ruins. Support is given to the Intermediate dating of the original building by the presence of the long deep drain in West Street which doubtless served it (Pl. XIII, B). Its channel which is 6 ins. wide by 3 ft. deep certainly dates from the Intermediate I Phase; and I have already suggested in describing West Street (pp. 34–5) that the sides of this drain were raised in the Late III Phase in order to keep it in use, but that later it was replaced by two drains at a higher and more convenient level.

The building had its own well, 5 ft. 5 ins. in diameter, in the north-east corner, and as there are no signs of any entrance to it from outside, its use seems to have been reserved for the big building alone. As is seen in Pls. XI, e; XII, f, the steening and the surrounding pavement were raised from time to time to keep this well in use; indeed, two pavements at the levels 2 ft. and 0·1 ft. below datum respectively are evidently those of the Late Ib and Ia Phases. It should be noted that in the absence of the attentions of brick-robbers the thickness of the walls adjacent to this well led to the preservation of this part of the building after the Late III Phase; which accounts for the unusually high levels of the pavements of Late Ib and Ia days. Nor is there any doubt that further clearance will reveal other pavements below. The addition to the steening in the Late Ia Phase is built of the usual wedge-shaped bricks, 10·7 × 5 – 5·4 × 2·5 ins. in size.

At the northern end of Block 18 a long corridor, 4 ft. wide, probably gave access to the annexe from the main building, though the positions of the doorways on either side of the corridor cannot be determined. This corridor, however, seems not to have communicated with the well-room, for a cross-wall towards its eastern end is too high for there ever to have been a doorway through it, except perhaps in the Late Ia Phase.

A row of small cells just inside the western wall seem to have been doorless, in the Late II Phase at any rate, and presumably earlier. The footing at the base of the inner and party-walls of some of them, at an average level of 6·7 ft. below datum, is presumably due to the greater thickness of the walls of the Late III Phase. These cells were probably filled up with mud-brick, as were similar cells in the Great Bath building, to form a platform for some as yet unknown purpose. To the west of cells 62, 64 and 65, the great wall shows definite evidence of having been raised, for the somewhat roughly laid masonry above the level – 3·1 ft. projects slightly beyond the finer masonry below.

Until the excavation of this very important building is carried further, there is little else of interest to record about it. A wall, only one brick thick, of Late Ib date (Pl. XIII, C) between two small rectangular piers in room 53, 54 is curiously constructed of rows of bricks on their longer edges separated by rows of stretchers.[1]

In room 106, near the well-room, there were the remains of a pavement, 3 ft. 4 ins. square, of Late Ib date which sloped towards a rectangular aperture, 3 ins. high, in its south-western corner. This pavement was carefully edged on the two free sides.

[1] For very similar brickwork, see *Mohenjo-daro and the Indus Civilization*, pl. LXXVII, 3; also pl. XXIII, 7, of this book.

Pending further excavation it would be idle to speculate as to the use of this building. Though larger than the Great Bath building near the Stūpa, it seems not to have been a second public bath, for the thick walls in its interior show that there was no cavity in its centre. We must, therefore, await the solution of the problems raised by the partial clearance of this interesting building until at some future date the excavation of Mohenjo-daro is resumed.

Block 20 (*Pl. XIII*).

The uppermost strata of Block 20, which alone have been cleared, had been so nearly destroyed by brick-robbing and by the hand of time that nothing remains in them of interest. As far as we can see, this block was built on mud-brick foundations ; but, none the less, a great deal of subsidence took place which even effected the northern wall of Block 18. Indeed, this northernmost portion of the DK mound would have been more directly affected by floods than any other part of the city. For we are justified in presuming that if a wall existed round the north of the city, it would have been situated not far beyond, with a gate just where First Street debouches into the plain. The brick-field which lies only a few yards beyond on the one side and the public refuse-heap on the other would both naturally have been relegated beyond the limits of the city.

It is possible that further excavation will show that prior to the evacuation of the city at the end of the Late III Phase, Block 19 extended over the site later occupied by Block 20 and that the thick masonry of the earlier phases had been removed by brick-robbers. The later masonry that is now exposed to view is mostly of indifferent workmanship and had been frequently repaired.

Of House I (Pl. XIII) several of the partition walls have disappeared. House II is in not much better case. There appears to have been a third dwelling house (House III) to the east of House I—unless this group of rooms should be regarded as a part of either House I or II—which was entered from an alley-way (11). This entrance to room 16, which is the usual 3 ft. 4 ins. wide, is 5·4 ft. below datum and therefore of Late Ib date. The various pavements in these little dwelling-houses range from 4·2 to 3·2 ft. below datum and date from the Late Ia Phase.

Whenever the work at Mohenjo-daro may be resumed, there is still room for further excavation to the north of this block before the slope of the mound is reached.

Block 21 (*Pls. XIII ; XXII, 2*).

This block comprises at least two houses and, north of them, an open space, apparently courtyards, of which fragments of masonry may represent the walls.

House I may have been merely an annexe to House II, but its walls are so far destroyed that it is impossible to determine the positions of the doorways of the later occupations.

In the Late Ib Phase (Pl. XIII, C), House II was entered from Central Street by a doorway,[1] 3 ft. 8 ins. wide, into an entrance vestibule (12). In the next phase (Late Ia), this house was reoccupied without much alteration, save that the door between rooms 4 and 12 was blocked up (Pl. XIII, C). Probably a new sill was made at the higher level required, though denudation has removed all trace of it. Beneath this blocked-up doorway we came upon an older wall of the Late II Phase at the level – 6·9 ft.

[1] Level of door-sill, – 4·9 ft.

From room (4) a doorway, 4 ft. wide, with its sill at the level – 4·3 ft., led into the rest of the house. The other doorways that have been cleared all belong to this same phase ; but there are likely to be others of Late II date below ; a shaft dug in room 16 shows that its doorway existed as far down as 8·6 ft. below datum, below which yet other sills will probably be found. It seems improbable that this house was entered directly from Central Street in the Late III and II Phases, as at those times—and especially in Late III days—it was evidently considered preferable that a private house should be entered from a side lane. In actual fact, there is a blocked-up door in the northern wall of this house, whose sill is 7·7 ft. below datum and, therefore, of Late II date. As, however, another wall which masks the southern face of the north wall of the house needs further examination, we must for the present leave the purpose of both this doorway and the masking wall an open question.

Though the cesspit in Central Street outside room 4 of this house dates from the Late II Phase, three badly damaged walls still stand nearly 3 ft. high. This pit is 2 ft. 5 ins. wide, but its length—now some 5 ft. 7 ins.—cannot be determined as its western wall has been entirely destroyed. The paved floor at the level – 8·2 ft. is tolerably well preserved. When this cesspit fell into disuse, a small drain with a channel only 4·5 ins. wide was laid along the top of its eastern wall and then ran in a curve across the street into the cesspit outside Block 8A. This drain was used both in the Late Ib and Ia Phases, for when the need arose a chute was made to carry drainage down into the horizontal channel of the Late Ib occupation from a rectangular aperture, 8 ins. high by 4 ins. wide, in the wall above.

House III also was entered from Central Street in the Late Ib Phase by a doorway, 3 ft. 4 ins. wide, whose sill is 5·3 ft. below datum. This entrance was blocked up in the Late Ia Phase and a doorway, 3 ft. 7 ins. wide, was made some 2 ft. above it. There are several small drainage chutes in the wall at this same level to the east of this door. The sills of three of the doorways inside this house are of Late II date ; they average 6·5 ft. below datum. The door between rooms 18 and 21, however, appears to have been made in the Late Ib Phase. A broad footing at – 7·5 ft. along the southern side of the wall between rooms 21 and 22 proves this wall to rest on a thicker wall of Late II date.

The walls of the courtyard (IV) to the north of these houses had practically disappeared with the exception of one long boundary wall, but their floors of sun-dried mud-brick, which were apparently laid in the Late III Phase, had been raised in Late II times. That parts of this open space were roofed over is indicated by the presence of a column, 2 ft. 1 in. square, of Late Ib date almost in the middle of it (Pl. XIII, C). This column, as is seen in Pl. XXII, 2, was built of bricks laid in a very haphazard fashion, and it is an interesting example of a type of masonry that was common at that period.[1]

Block 22 *(Pls. XII, c; XIII; XIV).*

At the floor level of the Late II Phase this building measures 51 ft. 3 ins., N.-S., by 56 ft. long at the north and about 54 ft. 9 ins. at the south. The thickness of its walls indicates a building of some importance ; indeed, the outer walls which have a batter are 4 ft. 4 ins. thick at the base and the inner walls 3 ft. 5 ins. Ledges and footings at various levels show that the building was repaired and

[1] Similar masonry also occurs at the lower levels, but more rarely.

its walls raised at various dates, though it does not seem to have been radically altered in design. There are, for instance, two footings, each about 6 ins. wide, along the southern side of room 3, the lower one 8·3 ft. and the other 6·2 ft. below datum, with a doorway above them at the level – 4·5 ft. Further digging would probably reveal other walls below, but provisionally we must assign the building as we see it to the Late II Phase, though on general grounds I am almost certain that it will be found to have existed in the Late III Phase, if not earlier still.

There are also indications that like the large building to the west of it, this block was erected on a mud-brick platform, which was set up in the Late Ib Phase with the remains of earlier walls incorporated in it.

The entrance of Late II date was probably situated on the eastern side of the building, where the walls were pulled down or collapsed to below sill-level before being rebuilt, in places actually below the Late II footing. The northern and southern walls, however, still stand fairly high, but there is no sign of a doorway in them of the Late II Phase. An entrance from the west can be entirely ruled out on account of the close proximity of Block 18, there being a distance of only 2 ft. between the blocks, which must have been even less in earlier times owing to the batter of the two buildings. This lack of doorways need not surprise us, for experience has shown us, as it must also have shown the masons of Mohenjo-daro, that the simple filling in of a doorway is a dangerous proceeding if a heavy weight is to be placed above. However carefully done, the filling will sag, and with it the wall it supports. It was, therefore, found necessary to bond in the filling of disused doorways with the brickwork on either side; this was at any rate done in the case of the only doorway of Late II date that still exists in this building, namely, the one from the western side of court 12, 13, 14 into room 11. We should not have discovered this door, which is 3 ft. 10 ins. wide, if the three lower courses of the filling had not been left unbonded.

Most of the doorways of the Late Ib Phase are well defined; they average 4·4 ft. below datum and are shown in the plan (Pl. XIII, C). During this period the building was entered from the south by a door, 3 ft. wide, at the level – 4·5 ft.

At the eastern end of the vestibule 3, a pavement (Pl. XII, c), now partially destroyed, at the level 5 ft. below datum was drained through a chute, 7·25 ins. wide, into a very carefully paved cesspit outside the southern wall of the house. From this pit the water escaped through a sloping drain which is still embedded in the mud-brick filling of the open space to the south of the block.

The courtyard 12, 13, 14, which is some 23 ft. 5 ins. by 20 ft. 2 ins. in extent, appears to have been at least partially roofed over, for the very massive T-shaped projection from its northern wall undoubtedly served to support a roof. This court must have been entered from room 4 and have given access to rooms 8 and 9 by way of room 15; but the doorways are no longer traceable, as the walls are now below even Late II level along practically their entire length.

In the Late Ia Phase, the presumably new owner of the building had a certain amount of alteration made (Pl. XIII, A). The thick wall running east to west through the middle of the building no longer existed at this period. The entrance from the outside was also shifted further to the west, the original doorway being blocked up and room 1 now serving as a vestibule instead of room 3.[1] Certain new doorways, indicated by dotted sills, appear to have been made, but they must be regarded as somewhat doubtful owing to denudation.

[1] The sill of the outer door is 3 ft. below datum.

I am inclined to think that this building was the house of some rich personage, for it is very compact and the arrangement of the rooms would not have admitted of a large number of people living in them. Indeed, it is possible that it was built for the custodian or controller of the great building adjacent to it on the west; both buildings appear to have been designed by the same architect.

Block 23 (*Pls. XI, f; XII, a, d; XIII; XIV; XXII, 1*).

The walls of Block 23 are markedly inferior both in thickness and quality to the masonry of the blocks immediately to the south and west; and though various problems present themselves that further excavation would probably clear up, this block appears to have comprised three private houses, in the Late II Phase at least.

It was the usual custom, we have found, to make the coping of a well almost flush with the surrounding pavement, or at most only a few inches above it; so that unless wooden coverings were used to close the wells when not in use there would have been a very considerable risk of people, especially children, falling in. The well in room 4 of House I is a remarkable exception in that its coping stood no less than 20·5 ins. above the floor in the Late II Phase—which suggests that the owner of the house had perhaps already had a bitter experience. The part of the steening above pavement-level and beneath the coping was most carefully rubbed down on the eastern side to remove the rough look common to the outsides of the well-linings hidden in the soil (Pl. XI, f).[1] The coping was made of ordinary, not wedge-shaped bricks, and in the photograph the holes worn by the pots in the carefully laid pavement are seen; the drippings from the pots were drained away to the north by a channel that has not yet been cleared. The other side of the steening which would not have been seen so much is rough, as usual, though it is possible that the whole of the upper part of the well was originally finely finished and that part had broken down and was roughly repaired at the time that the whole of the well-lining was raised in the Late Ia Phase. In the Late Ib Phase, it is of interest to note, the coping was not raised to accord with the general rise of level, since it was already sufficiently high; a new pavement, small portions of which still remain, was simply laid round its rim.

This well could be used from the corridor 7, 9, or it could have been approached through rooms 5 and 4 from a long passage-way (19, 20), 3 ft. 10 ins. wide, which runs from east to west along the northern side of the block. The doorway from room 5 into the well-room was originally 7 ft. wide in the Late II Phase, but it was made considerably narrower in the following occupation by building out a wall of a very inferior masonry from the western jamb.

The northern entrance of room 5 was entirely blocked up in the Late Ib and Late Ia Phases, and at the time that this was done, the long passage from which this room could be entered in the Late II Phase was cut off and in it were made two roughly laid pavements which may have been cooking places. Room 5 contained an irregular oval construction of clay, 6 ft. 5 ins. long by 4 ft. 5 ins. wide, whose walls stood in places over a foot high. This was possibly an oven or, perhaps, a kiln, like the one in the middle of the eastern end of Central Street, to which I have already alluded.

[1] One other such well-head has been found in Block 1 (Pl. XXXV, d).

The long corridor 7—9 averages 4 ft. 8 ins. wide and was partially or wholly paved in the Late II Phase at about the same level as the pavement beside the well, namely 8 ft. below datum. In the Late Ib Phase, a small drain was laid direct on this pavement against the western wall of the corridor. At the time this drain was laid, the pavement of the well-room would have been covered and lost to memory. This drain carried away the water from a small pavement, 3 ft. 6 ins. square, in the south-eastern corner of room 2. In the subsequent Late Ia Phase, the drainage of room 2 was served by a long curved channel which averaged 4·5 ins. wide and deep and sloped to the north-east. The further end of this channel has unfortunately entirely disappeared. Between the Late Ib pavement and the western wall of room 2, a roughly built staircase, 2 ft. 2 ins. wide, with treads of irregular breadth and height, may have led to the roof; owing to the thinness of the walls both of this room and of the rest of the block, it seems improbable that either this house or its neighbours had an upper storey.

Along the southern side of this block there is a row of six columns of different sizes and not in true alignment; three of them are 1 ft. 9 ins. square, the others rectangular, and the largest measures 2 ft. 7 ins. by 2 ft. 2 ins.[1] At a distance of 3 ft. 3 ins. to the north of this row are three other columns, and another two still further to the north. That these columns date from the Late III Phase seems to be established by the fact that when the foundations of the one on the southern side of court 13 were partially exposed it was found to rest on a plinth. Several of these piers were linked together by thin walls, and others incorporated into brickwork of the Late Ib Phase. They may once have served to support a group of rough shelters, for their variation in size and shape precludes their being of any architectural importance. The quality of their masonry is, moreover, very poor, including as it does a number of fragments of brick and masses of mud-mortar.

In the north-western corner of court 10–12 is a low platform of brick of Late II date, 4 ft. 10 ins., N.-S., by 4 ft. 6 ins., E.-W., which drained into the corridor to the west of it. In the eastern portion of this same court a skeleton (DK 11882) was unearthed at the level – 5·7 ft. It lay in a N. W.—S. E. direction and faced N. E. The bones of the arms had perished ; but those of the legs were in alignment with the body. The remains were badly decayed and no evidence was found that this burial was of the Indus Valley Period as we understand it at Mohenjo-daro.[2]

There is a blocked-up doorway in the western wall of the large room or court 13 (Pl. XII, a). The level of the lower sill and footing seen in the photograph is – 9·2 ft., rather high for the Late III Phase ; but I hesitate about dating it later. This doorway, which is 3 ft. 4 ins. wide, was evidently in use for some time, but was blocked up at the level – 7·5 ft. (Late II Phase), and perhaps also in the Late Ib Phase. It has already been mentioned that the southern jamb of this door was once a free column.

In the north-western corner of room 15 is a privy in a remarkably good state of preservation (Pls. XII, d ; XXII, 1). The paved floor, 3 ft. square and 8·4 ft.

[1] One of these columns forms the southern jamb of the closed-up doorway in the wall between courts 10–12 and 13.

[2] The situation of the skeleton close to the surface of the ground and the salty soil in which it lay would have combined to destroy it long since, had it been an ancient burial. There were the remains of another skull and thigh bone close by.

below datum, is carefully bordered all round with bricks set on edge, and a recess in the northern wall, 1 ft. 9 ins. wide by 1 ft. 4 ins. deep, has a little platform on each side of it, 1 ft. above the level of the floor. The faeces escaped through a hole in the wall into a drain in the passage outside which has not yet been cleared down to this level. Immediately east of this privy is a small flight of steps, 2 ft. 11 ins. wide, whose four remaining treads averaged 7·5 ins. in breadth by 9·5 ins. high. These steps probably led up to a privy of the next phase situated above the Late II structure shown in the photograph, which also appears to have been entered from the east.

Despite their thinness the walls in this block are well built, especially their lower portions. We have not yet reached their foundations, but they will no doubt be found to rest on a mud-brick platform; the remains of later mud-brick filling are to be seen in the various rooms and courts.

My reasons for thinking this block dates back to the Late III Phase at least are the level of the footing (−9·2 ft.) along the eastern face of the wall between courts 10–12 and 13, and also the fact that a column in this last court rests on a plinth at a low level. This block was most probably built to provide quarters for the people attached to the very large building to the west.

Blocks 24 and 28 (*Pl. XIII, C*).

Blocks 24 and 28 have been only partially cleared, and it is impossible at this stage to give an adequate description of them. The quality of the masonry somewhat resembles that of Block 23, and it is possible that these three blocks were once one building with a long central corridor. The top of the well in the north-western corner of Block 24 is now 3·8 ft. below datum and its internal diameter is 3 ft. 4·5 ins. The coping was made of bricks of ordinary shape with broken pieces set between their outer ends to fill up the gaps.

Block 25 (*Pls. X, d; XIII*).

Most of this block has been cleared only to the foundations of the Late Ib Phase (Pl. XIII, C), and in consequence it gives an impression of poverty that would probably not be true of the remains of the buildings of earlier periods beneath. The walls are poorly built and not very massive, even the most substantial which fronts Central Street (Pl. X, d, right hand side) being only 2 ft. 1 in. thick.

The most important room of House I (2, 3, 4), which fronts on Central Street, measures 19 ft. 7 ins. long by 7 ft. wide. A footing along the southern wall coincides with an encroachment on the street mentioned elsewhere. This footing at the level 6·4 ft. below datum marks the top of an older wall whose alignment the builder of the new house ignored, perhaps through carelessness, but, it may be, with a desire to filch extra territory. A badly damaged pavement 1 ft. 10 ins. below this ledge is presumably of Late II date.

The western end of room 2, 3, 4 has not yet been cleared, and high up on the débris between it and the outer wall of the block is a rectangular patch of pavement bordered by bricks on edge at the level −3·7 ft., *i.e.*, of Late Ia date. The walls that once surrounded it have disappeared down to pavement level. No entrance to this room has yet been found, even from Central Street as one might expect. As, however, the western wall rests on rubble, it is possible that there was an entrance on this side.

The area 8, 10 seems to have been a courtyard, though it is now in a deplorable state of dilapidation. The southern and western walls have collapsed, not through denudation but owing to the subsidence of their badly constructed foundations. Indeed, it was difficult to find the proper limits of this courtyard.

In the Late II Phase, room 9 appears to have served as a vestibule, doorways in the western and northern walls giving entrance from the open space to the north-west, and a third doorway communicating with the courtyard of the house. The sill of the latter doorway, which is 2 ft. 10 ins. wide, is 8 ft. 3 ins. below datum. Another sill, 3 ft. 3 ins. higher, was made when the original door could no longer be used and was blocked up to the level of the subsequent, Late Ib Phase.

A lane (19) averaging 6 ft. 10 ins. wide which separated Blocks 25 and 26 seems to have been made in the Late Ib Phase to give access to the backs of Blocks 21, 22, 25 and 26. The existence of a cross-wall beneath shows that this lane was not a thoroughfare in earlier times. Moreover, there is reason to think that a substantial wall, whose top just appears above the surface of the lane and is shown in the plan as close to and parallel with the southern limit of Block 26, formed part of Block 25 in the Late II Phase.

Block 26 (*Pls. XIII, C; XIV*).

House II of this block has not been cleared to any considerable depth. The sills of the doorways in the plan are at an average level of 5·6 ft. below datum and apparently none of them rest on the blockings of older doors, except that between rooms 14 and 16. All these doorways when found were blocked up with masonry of the Late Ia Phase, but no trace now remains of the rooms and houses of that phase, all of which have disappeared. The entrance to the block from First Street, which is 3 ft. 8 ins. wide, owes its preservation to the workmanship of its jambs. Several of the walls of this house rest on rubble mixed with an unusual quantity of potsherds, which was perhaps brought from outside to raise the level as being a cheap substitute for the more usual sun-dried brick.

In Building I in the same block several thick walls, evidently of the same nature and thickness as those of Block 22 to the west, appear just above the level to which we have cleared. In fact, one of these walls is in direct alignment with the northern wall of Block 22. That this building was not, however, an annexe to it is shown by the batter of the outside walls of both the buildings, between which was a narrow space, 2 ft. 9 ins. wide. At the northern end of this little passage there is a single step, 9 ins. deep and 7 ins. high, at the Late II level, which may be the remains of a stairway between the two buildings that led to their upper stories or their roofs.

Block 27 (*Pls. XIII, C; XIV*).

Block 27 appears at first sight to be a continuation of Block 23, but its thicker walls, which are as much as 2 ft. 8 ins. wide, suggest that anciently it was once a separate building. A great deal of destruction has taken place here, and we have not as yet reached the remains of the wall that fronted First Street. This wall probably collapsed at a very early date and has almost completely disappeared.

A large expanse of pavement in room 9 of House II at the level 9 ft. below datum was exceptionally carefully laid and edged all round ; with the pot-cavities made in it to hold storage-jars, this pavement shows this to have been the house or business-premises of a man of some standing.

Room 4 of House I, which measures 16 ft., E.-W., by 14 ft., N.-S., has a well-preserved doorway, 4 ft. 9 ins. wide, in its southern side, whose sill at the level 8 ft. below datum shows it to have been made in the Late II Phase. Another well-preserved door between rooms 1 and 3 is 3 ft. 9 ins. wide with its sill 6·5 ft. below datum.

On both sides of First Street the masonry of the later phases has suffered badly, probably from summer rains which must have poured down the street like a river.

List of Objects from DK AREA, G Section, Northern Portion.

Object.	Plate and No.	Room.	Level. (Ft.)
Block 13.			
House I.			
Pottery Whorl	(Pl. CVI, 24)	Room 12	– 7·5
House II.			
Agate Marble	(Pl. CVI, 16)	North of room 7.	– 10·1
Male Figurine	(Pl. LXXIV, 14)	Do.	– 10·0
Pottery Fowl	(Pl. LXXIV, 2)	Room 7	– 9·2
Faience Stud	(Pl. CXXXVI, 90)	North of room 7.	– 6·3
House III.			
Copper Razor	(Pl. CXVIII, 7)	19	– 9·0
Seal	(Pl. LXXXVI, 169)	18	– 7·6
Pottery Bird	(Pl. LXXIV, 3)	19	– 6·0
Seal	(Pl. LXXXIV, 75)	13	– 5·6
Brick toggle (?)	(Pl. CVI, 39)	19	– 3·8
Block 14.			
House I.			
Pottery Bird	(Pl. LXXIV, 2)	4	– 8·2
House II.			
Paste Hare	(Pl. LXXIV, 20)	8	– 5·9
Ram Amulet	(Pl. LXXIV, 6)	16	– 5·0
House III.			
Faience Pin-head	(Pl. CXXXVI, 78)	24	– 5·1
Metal Hoard	(Pls. LXXIV, 18, 19 ; CXIII ; CXIV ; CXV, 1–9).	19	– 4·8
Shell Ball	(Pl. CXIV, 9)	19	– 4·8
House IV.			
Pottery Palette (?)	(Pl. CVI, 26)	26	– 7·4
Pottery Toy	(Pl. LXXIV, 13)	29	– 3·2
Bronze Spacer	(Pl. CXXI, 39)	30	– 2·5

Object.	Plate and No.	Room.	Level. (Ft.)
Block 15.			
House I.			
Seal	(Pl. LXXXVII, 222)	5	– 8·4
House II.			
Pottery Cone	(Pl. CVI, 8)	7	– 7·9
House III.			
Paste Amulet	(Pl. CXXXVI, 74)	10	– 6·0
House IV.			
Sealing	(Pl. XC, 23, 24)	12	– 6·0
House VI.			
Copper Scale-pan	(Pl. CXXI, 27)	28	– 7·1
Fuchsite Cup	(Pl. CXVI, 2)	28	– 7·1
Metal Hoard	(Pls. CXVI; CXVII, 1–4)	28	– 7·1
Paste Button	(Pl. CXXXVI, 72)	28	– 6·4
Barrel-weight	(Pl. CVI, 52)	28	– 5·7
Barrel-weight	(Pl. CVI, 53)	28	– 5·7
Metal Hoard	(Pl. CXV, 10–16)	28	– 5·7
Block 16.			
House II.			
Sealing	(Pl. XC, 13)	13	– 3·9
Block 17.			
House I.			
Seal	(Pl. LXXXVII, 258)	7	– 9·2
Block 18.			
Male Figurine	(Pl. LXXIV, 23, 24)	31	– 8·7
Bone Pin	(Pl. CXXXVI, 76)	43	– 8·7
Copper Spear-head	(Pl. CXX, 7)	7	– 8·5
Copper Knife	(Pl. CXXIII, 1)	9	– 8·5
Copper Dagger	(Pl. CXX, 1)	21	– 8·5
Copper Chisel	(Pl. CXXI, 18)	72	– 8·0
Ivory Hook	(Pl. CVI, 31)	31	– 7·4
Copper Razor	(Pl. CXXI, 32)	68	– 7·3
Copper Razor	(Pl. CXXI, 36)	2	– 6·9
Copper Razor	(Pl. CXXI, 25)	2	– 6·5
Pottery Bangle	(Pl. CXL, 65)	102	– 6·3
Limestone Cone	(Pl. CVI, 55)	62	– 6·0
Pottery Bird	(Pl. LXXIV, 5)	110	– 5·8
Alabaster Pedestal	(Pl. CVI, 48)	48	– 5·7
Shell Head of Bull	(Pl. LXXIV, 12)	7	– 5·7
Copper Spatula (?)	(Pl. CXXI, 33)	38	– 5·5
Copper Bangle	(Pl. CXXXVI, 97)	48	– 5·6
Unfinished Shell Ladle	(Pl. CVI, 46)	7	– 5·6
Copper Knife	(Pl. CXXII, 2)	57	– 5·3
Copper Arrow-head	(Pl. CXXV, 47)	57	– 4·0
Seal	(Pl. LXXXIII, 24)	107	– 3·9
Steatite Inlay	(Pl. CVI, 11, 12)	94, 101	– 3·8
Shell Measure	(Pl. CVI, 30)	46	– 3·6
Copper Knife	(Pl. CXX, 8)	55	– 3·4

Object.	Plate and No.	Room.	Level. (Ft.)
Block 19.			
Nil.			
Block 20.			
House II.			
Seal	(Pl. LXXXIV, 86)	13	− 5·7
Block 21.			
House II.			
Pottery Trap	(Pl. LIV, 16, 17)	15	− 8·4
Brick Gaming-board	(Pl. CVI, 49)	4	− 5·7
House III.			
Copper Knife	(Pl. CXVII, 9)	21	− 8·8
Ivory Object	(Pl. CXXV, 2)	21	− 8·6
Faience Ornament	(Pl. CXXV, 17)	21	− 8·2
House IV.			
Faience Spindle-whorl	(Pl. CVI, 14)	23	− 7·1
Bronze Chisel	(Pl. CXIX, 12)	23	− 2·6
Block 22.			
Seal	(Pl. LXXXVII, 255)	2	− 9·4
Ivory Baton	(Pl. CVI, 42)	4	− 6·4
Block 23.			
House I.			
Cake-mould	(Pl. CVI, 45)	2	− 9·0
Pottery Bulla	(Pl. CXXXVI, 80)	4	− 8·8
Copper Dagger	(Pl. CXXIII, 2)	3	− 5·0
Pottery Bangle	(Pl. CXXXVI, 93)	1	− 3·3
House II.			
Ivory Pin	(Pl. CXXV, 7)	13	−10·5
Ivory Baton	(Pl. CVI, 43)	13	− 7·3
Case-seal	(Pls. LXXXIV, 95 ; XC, 11)	8	− 6·4
Block 25.			
House I.			
Shell Spindle-whorl	(Pl. CVI, 23)	11	− 9·9
Bronze Ingot	(Pl. CXXI, 19)	9	− 9·0
Copper Razor	(Pl. CXXI, 26)	10	− 8·1
Pottery Loom-weight	(Pl. CVI, 41)	13	− 7·9
Seal	(Pl. LXXXIV, 78)	4	− 5·9
Shell Gamesman	(Pl. CVI, 2)	7	− 5·7
Bronze Fish-hook	(Pl. CXXV, 48)	9	− 5·2
House II.			
Faience Spindle-whorl	(Pl. CVI, 13)	15	− 8·6
Pottery Dove	(Pl. LXXIV, 4)	15	− 8·4

Object.	Plate and No.	Room.	Level. (Ft.)
Block 26.			
House II.			
Copper Razor	(Pl. CXXV, 38)	12	– 9·7
Lead Plumb-bob	(Pl. CXXV, 50)	14	– 9·6
Ivory Pin	(Pl. CXXV, 8)	12	– 9·6
Bronze Spacer	(Pl. CXXI, 38)	9	– 9·1
Perforated Limestone Weight	(Pl. CVI, 54)	14	– 5·8
Block 27.			
House I.			
Faience Stud	(Pl. CXXXVI, 91)	4	– 8·5
Portion of Shell-cover	(Pl. CVI, 27)	1	– 7·1
Head of Bull	(Pl. LXXIV, 8)	1	– 6·9
Paste Spindle-whorl	(Pl. CVI, 34)	7	– 5·9
Block 28.			
Pottery Rasp	(Pl. CVI, 32)	5	– 6·2
Block 29.			
Frag. Offering-Stand	(Pl. CVI, 10)	1	–10·8
Seal	(Pl. LXXXVII, 259)	1	– 9·2
Male Figurine	(Pl. LXXIV, 16)	14	– 8·9

CHAPTER VII.

ARCHITECTURE AND MASONRY.

The general features of the architecture and the methods of building in this city of the Indus civilization were fully dealt with in the first book on the site,[1] and it is not my intention to recapitulate what was there said. But certain newly found details of interest call for notice, and in the light of further knowledge it is incumbent on us to modify certain of our previous conclusions.

Mortar.

In most cases mud-mortar was used and what was thought earlier in our work to be gypsum-mortar has been proved by Dr. Plenderleith of the British Museum to be a later infiltration of gypsum in the form known as *selenite*. It appears, however, that in the Late II and Late Ib Phases the walls of certain buildings in Central Street were *pointed* with gypsum cement of a light grey colour, a feature not before observed at Mohenjo-daro.[2] This pointing has been examined by Khan Bahadur Muhd. Sana Ullah.[3]

In an exceptionally well-constructed drain of Intermediate I date in First Street (Pl. XLV, a), the mortar contained a high percentage of lime. And it is curious that lime should have been used in place of gypsum seeing that it is more difficult to prepare and that it was not used in either Mesopotamia or Egypt until a comparatively late date.[4] A much greater degree of heat is, in fact, needed to calcine limestone than gypsum; but it should be remembered that in ancient days as now Sind had an ample supply of wood suitable for burning, which was by no means the case in the other two countries. The presence of lime as well as gypsum mortars had already been noted in the earlier excavations.

Plaster.

We now have evidence that mud-plaster was used more frequently to cover the brick walls of Mohenjo-daro than we at first supposed; but in the great majority of the buildings it has entirely disappeared, probably owing to the action of salt and flooding. On many of the houses of the Late Ia Phase it was quite well preserved, but this was rarely the case in the deeper strata. No gypsum-plaster such as is known in other parts of Mohenjo-daro[5] was found in the DK Area (G Section). Some of the mud-plaster on the walls of House IV, Block 10, of the Intermediate III Phase, in passage 11, 99, Bl. 12 (Pl. XVII), and in room 32 of the Palace, both of Intermediate II date, owes its preservation to having been burned. Evidence of houses having been burnt out is extremely rare, and accidental fires were evidently carefully guarded against. This fact is important,

[1] Marshall, *Mohenjo-daro and the Indus Civilization*, Chap. XVI.

[2] This can hardly have been done for the sake of appearance and it would have prevented the mud-mortar crumbling out from between the bricks.

[3] He reports that it is composed of gypsum with a considerable proportion of sand and clay, and a trace of calcium carbonate.

[4] Since this was written, Frankfort has reported the presence of a kiln for burning lime at Khafaje in Mesopotamia, as well as actual lime-plaster. *Tell Asmar and Khafaje*, 1930-1, p. 90.

[5] *Mohenjo-daro and the Indus Civilization*, pp. 197, 263, 278.

because the lack of evidence of conflagrations strongly suggests that the city was not sacked by invaders, as so frequently happened to the cities of ancient Sumer, where whole quarters were destroyed.

Masonry.

In the detailed descriptions of the buildings, I have alluded to the space that is frequently seen between the outer walls of adjoining houses, and which owing to the batter of the walls tended to become wider as the walls were raised.[1] Sometimes this space was roughly filled up with bricks—possibly so soon as it became wide enough to allow of cat-burglars climbing up, an easy matter to an agile man. But, more frequently than otherwise, this filling was only done at the two ends of the space, the middle being left empty. An examination of the débris in such an intermural space revealed the interesting fact that it was mainly composed of wind-borne dust.

In even the poorest houses practically every wall was solid; rubble filling was not used, as in some of the burnt brick buildings of Mesopotamia.[2] Bricks were evidently too cheap and too easily obtained for any economy in their use to be necessary. In one wall of Late III date in Block 10 (Pl. XXIII, 11), it is true, the bricks were so arranged that in the middle of the wall small spaces were left between them. But this was clearly done with the purpose of making the bricks fill a given space; the width of the wall was 2 ft. 2 ins. and the bricks available only 11·75 ins. long,[3] so that two laid as stretchers were insufficient to span the width and the addition of a third brick as a header would have exceeded it. The space between the ends of the bricks was filled in with mud and broken brick, whereas at the end of the wall pieces of brick were cut to fit the interstices and so provide a satisfactory face. The same procedure was followed in some of the thin walls of Block 23 in the Northern Portion (Pl. XIII, A).

Owing to the bricks filched from buildings of earlier date being of various sizes, it was not always possible for the masons who re-used them to lay them as was customary in alternate headers and stretchers. This was done so far as was possible, but occasionally it was necessary to insert a stretcher here and there in a course of headers to prevent two vertical joints being in alignment. This is especially noticeable in the less substantial walls of the Late Period.

In the description of the buildings, I have occasionally mentioned a footing, but it should be stated that actual footings are somewhat rare. In the Late Period, and especially towards the latter end of that period, those walls that were built upon older walls as foundations were rarely of the same thickness—possibly for the sake of economy. Thus a ledge was left on either side that might easily be taken, except when cleared well down, for part of a foundation especially laid to support the wall above. As a rule, when older walls were used as foundations, they were carefully levelled before being built upon, with the result that any ledge formed by a thinner wall resting upon a thicker one was at a uniform height along its entire length, or even all round a chamber. A ledge formed in this way usually marks the floor level of the new building.

[1] For example, between Houses I and III in Block 10 and House IV, Block I, and the western wing of Block 1.

[2] For instance at Ur: Woolley, *Antiquaries Journal*, Vol. VII, p. 391.

[3] These bricks measured 11·75×5·75×2·75 ins.

Owing to subsidences caused by floods and in some cases by faulty foundations, the house walls had sometimes to be prevented from falling by building brick buttresses against them; for example, the southern wall of the eastern courtyard and east wing of the Palace was strengthened by buttresses (Pl. XVII),[1] and in Pl. XXXVIII, a and c, the southern wall of House VI, Block 7, which is of Intermediate III date, is seen to be similarly strengthened. Then, as now, the exposed faces of the walls were apt to scale badly through the action of salt, and if the damage done was considerable, the walls were sometimes refaced. The southern façades of Houses VI and VII, Block 7, were renovated in this manner in the Intermediate I Phase (Pl. XVIII); and when the northern façade of the ruined Palace was used in the Late II and I Phases as the wall of a house, its worn appearance was hidden by building a thin wall against it (room 7 of House I, Block 10) (Pl. XX).

A new type of masonry in which courses of mud mixed with potsherds alternate with courses of burnt bricks was introduced in the Late Ia Phase. It is seen in rooms 11, 12 and 17 of House II, Block 17, and also high up the northern wall of the supposed Khan (Block 11) in Long Lane. Very similar masonry of alternate courses of burnt and unburnt brick lined the walls of Late Ia date of House VII, Block 7 (Pl. XX). Masonry of this latter type occurs as early as the Intermediate II Phase in the foundations of a wall in room 24 of House II, Block 10. The only value of laying burnt bricks alternately with layers of other materials was, of course, economy.

Walls with a Batter.

With but few exceptions,[2] the outer walls of every building with any pretension to importance had a batter on the outside ranging from 2° 5′ to 6° 2′, *i.e.*, an average of 4° 4′ from the vertical. Where such walls were raised from time to time, the original angle of batter was preserved as closely as possible, with the result that the tops of some of the higher walls are comparatively thin as compared with their bases. I have before suggested that the origin of the batter of walls was from mud or pisé walls, though the latter usually have a batter on both sides.[3]

The advantages of a wall with a batter are uncertain. The economy of bricks secured and the added strength may have been more than offset by the extra skill required to preserve an even slope. On its outer face a wall of this type would certainly seem to be more exposed to weather conditions than a vertical wall; moreover, the spouts to carry off rain from the roof of a high building would need to be much longer to prevent the water splashing on the base of the wall. Possibly these considerations had no weight with the builders of walls of this type; this method of building probably came down from very early times and conservatism prevented their giving it up.

Wells.

Very few wells, we found, had been lost in the gradual rising of the mounds by the accumulation of rubbish. Water was too precious a commodity to allow

[1] These necessarily appear in the plan of the Intermediate II Phase, though they were actually built in Intermediate I times.

[2] The outer walls of a few buildings of Late date have no batter.

[3] Walls with a batter are to be seen in the larger buildings of both Sumer and Egypt.

of the disuse of a well; by which I do not wish to imply that water was actually scarce, for then, as now, it could be obtained by digging anywhere in the alluvial plain. But for the ceremonial ablutions that they seem to have performed the people of Mohenjo-daro evidently required an ample supply of water conveniently accessible, which accounts for the large number of wells in the city. Only two in the large area excavated had fallen into disuse after the Intermediate I Phase, in Blocks 5 and 9 respectively.[1] Possibly somebody had been drowned in each of them. I am told that in India to-day wells are frequently abandoned for this reason.

In all the wells there is evidence that the steenings had been raised from time to time. In most cases they were lined with wedge-shaped bricks laid on their flats; but in the wells in House II, Bl. 10, of the DK Area (Pl. XLIX, f) and Block 6 of the SD Area (Pls. V, d; VI), the coping was made of bricks, also wedge-shaped, lid on edge. These bricks could equally well have been used for vaulting, but we have found no evidence whatever that the true arch was known at Mohenjo-daro; corbelled arches or flat lintels seem to have been the rule. Where wedge-shaped bricks were laid on edge in the coping of a well, they were liable to be canted upwards by the pressure of the rope on their inner ends. To obviate this a guard of bricks on end was laid around the outside of the coping, these in turn being held securely in place by the pavement of the well-room. Examples of this precautionary measure may be seen in Pls. V, d; XXXVII, d; XLIX, f; and in Pl. XLIII, b, it will be noticed that a similar guard was used even when the bricks of the coping were laid on their flats.

All the wells that we have cleared so far down were in use in the Intermediate III Phase and were perhaps sunk even earlier. Not a single one seems to have been sunk after that period—possibly owing to the cost, but more probably to the difficulty of sinking a well through ground full of the burnt brick masonry of earlier periods.

There are at least two instances where, instead of raising the steening of a well to accord with the rise in level of the mound, a short staircase was constructed to lead down into the well-room. This was done in Block 8A (Pl. XLIII, b and c) and House I, Block 15, towards the latter end of the Late Period (Pls. XII, e; XIII, C); and the necessity of raising the steening and taking up the pavement round the well to relay it at a higher level, or to lay an entirely new pavement, was thereby avoided.

In two cases, the coping instead of being, as was usual only a few inches above the pavement was raised to some height above it, probably to obviate the danger of children falling in. These two wells are illustrated in Pls. XI, f; XXXV, d, the first being of Late II and the second of Late III date. The high copings of these two wells were very carefully finished on the outside, being rubbed smooth in the same manner as were some of the pavements, whereas in general the steening of a well, being destined to be hidden by the soil, was left very rough.

The inside diameters of the wells of the ancient city vary from 2 ft. to 3 ft., the most usual size being 2 ft. 2 ins. Not every house had its own well; for instance, there were none in certain houses cleared in Blocks 2, 3 and 5 in the Southern Portion of the DK Area, G Section, nor in several blocks in the Northern Portion. Many householders seem to have allowed their neighbours access to their

1 Their copings were 13·6 and 13·4 ft. below datum. The well in Block 5 has been included in Pls. XIX and XX by mistake.

private wells, and one well at least, that in Block 8A, appears to have become public property in later times.

The well in Block 6 of the SD Area (Pl. VI) was quite unusual in shape. It was purposely made elliptical in order to accommodate as large a well as possible in a narrow room (Pl. V, d), whose shape was pre-determined by the walls of the previous phase being raised.[1] Another elliptical well in the buildings south of the Stūpa is mentioned in the first book on the site, these being the only two examples as yet found at Mohenjo-daro.[2]

Pavements: Bathrooms and Privies.

Not all that were formerly termed "ablution pavements", or bathrooms, proved to have been used for that purpose. Some few of the smaller ones were undoubtedly privies; they are similar in every respect to those used in Sindh to-day even to the chutes built in the thickness of the walls. In several cases, the drainage chutes from a bathroom and a privy are seen close side by side; for example, on the western side of the northern end of West Street. The bathroom chute there, as elsewhere, is sloped, and that from the privy is vertical and chimney-like. The two best examples of privies are illustrated in Pl. XII, b and d.[3]

Some of the bathrooms were exceptionally well paved, frequently with cut bricks. In the first book on Mohenjo-daro, I drew attention to the fact that many of these pavements had been polished by constant use and that they are also sometimes stained a deep red colour. The latter I have hitherto attributed to the oils used to anoint the body after bathing; but the perspiration from bare feet has been observed to produce the same result and oil may not necessarily have been the cause of this patina.[4]

I have no doubt that many more pavements were laid than we have unearthed; for it was evidently customary whenever possible, to take up the flooring when walls were raised to re-use it at a higher level. Indeed, some of the bricks specially used for paving may have been relaid not once, but several times. As a rule, only mud was used as a cement, and the bricks laid in it could have been separated without much trouble.

Whether they were used for ablutions or for ordinary flooring, the brick pavements of Mohenjo-daro invariably slope to one corner for drainage after being washed down, and more often than not they were bordered all round with bricks on edge in order to protect the bases of the walls from the infiltration of water (Pls. III, b; XXXIX, a; XLIX, f).

[1] Possibly this well may have started by being round. It awaits further clearance.

[2] *Mohenjo-daro and the Indus Civilization*, p. 150.

[3] Dr. Frankfort has found a number of privies at Tell Asmar which he says have raised seats, instead of being merely a hole in the floor as in so many parts of the modern East. It is, of course, quite possible that a wooden board was laid across the two brick supports in the privies of Mohenjo-daro (see Pl. XII, d), though I am inclined to think that these supports were for the feet as in the more primitive latrines of modern Egypt and Mesopotamia. *Illus. Lon. News*, July 15, 1933; p. 112. See also Chap. XIX.

[4] My wife has pointed out that the floor of the verandah of the bungalow at Mohenjo-daro is rapidly acquiring the same deep red patina where the servants step out of their shoes before entering the dining-room.

A curious pavement of Intermediate I date in House III, Block 9, was concave with a shallow channel chiselled in it to run off the water (Pls. XVIII; XXXIX, c). A pavement of circular shape just to the north of House II, Block 2, may have been used for washing clothes (Pls. XVII; XXXVI, c), as was a pavement in room 45 of House I or XII, Block 9 (Pls. XX and XLIII, e).

Nowhere in Mesopotamia, whether in the early periods or late, do we find the ablution pavements that are such a feature of Mohenjo-daro. This indicates a considerable difference between the religious rites of the two countries. There is evidence that ablutions were performed before worship in the temples of Mesopotamia, for a well was provided in the court of each temple for this purpose; probably, however, this ritual purification was very perfunctory, only parts of the body being cleansed. The contrary was the case at Mohenjo-daro, where every house had its bathing-place, whose floor polished by wear shows that it was well used. There seems to be no doubt that these ablutions were not only performed for the sake of cleanliness, but chiefly for ritual purposes; as it is required of the Hindu to anoint himself and bathe before his morning prayers, so to do was in all probability the duty of the ancient people of the Indus valley also. In fact, we may perhaps go so far as to suggest that the present custom of the Hindus is a survival of one that was practised in India some 5,000 years or more ago.[1]

Doorways and Doors.

The most usual width for a doorway was 3 ft. 4 ins.[2] But, curiously enough, this size does not tally with the one and only scale of measurement that we have found at Mohenjo-daro, which is seen in Pls. CVI, 30; CXXV, 1. The unit in this scale is the equivalent of 2·65 ins.; and though fifteen times this unit gives the most frequent width of a door, the unit would have to be taken sixteen and a half times to give the next width. It is, however, one thing in the East to set out the size of a door and another to see that the mason keeps to the exact dimensions; a certain amount of discrepancy has, therefore, to be regarded as inevitable.

In the great majority of the doorways, the jambs were quite plain and it is difficult to see how the doors could have been securely closed unless they were fitted into frames. Yet, none of the doorways show any evidence of wooden frames having been fastened to the brickwork. The pressure of a flat lintel on a door-frame of moderate size would, however, be sufficient in most cases to keep the frame in place; or perhaps the frame was erected against the jambs of a doorway instead of between them. Whatever the method employed, wood was by no means scarce at Mohenjo-daro, and the added expense of setting a door in a frame would have been a small matter.[3]

1 In view of a recently published report this statement is probably true of private houses only. Dr. Frankfort states that in the Sargonid palace at Tell Asmar in Mesopotamia no less than five bathrooms or ablution places were found. *Iraq Excavations of the Oriental Institute*, 1932-3, pp. 20, 30.

2 A narrow door was often only 2 ft. 4 ins. wide, and wider ones 3 ft. 8 ins., 4 ft. 10 ins., 5 ft. 11 ins., or even 8 ft. wide.

3 Frankfort suggests that in certain houses at Tell Asmar, dated to about the same period as the upper levels of Mohenjo-daro, some apartments at least were shut off from the street by mats or reed-screens: *Iraq Excavations of the Oriental Institute*, 1932-3, p. 13.

That framed doors were in almost general use is suggested by the small number of door-sockets that have been found, all of which, with the exception of one of stone, were made of ordinary bricks (Pl. CVIII, 7, 25). But if the doors were framed, we are driven to assume that they were quite light and hung with hinges of leather or some other perishable material. Two door-sockets were found *in situ* or nearly so, one just outside the door of the two-roomed structure of Early date in Block 7 (Pl. XV, d) and the other close outside the western jamb of the entrance of room 79 in the annexe of the Palace (Block 4). The possibility of door-sockets having been made of wood should, however, not be overlooked.

In two places we have found rebated jambs; the northern jamb in room 31 of the western wing of the Palace in the Intermediate II Phase, and the eastern jamb in room 83 of House IV, Block 10, of Late II date. In the first case the door must have been set between the jambs, and in the second outside them.[1] On the eastern jamb of the door in the southern wall of the entrance hall (55) of the Collegiate Building in the SD Area (Pl. VII), a door-stop, 6·5 ins. wide by 5·5 ins. high and projecting 3·5 ins. from the jamb, 11 ins. above the sill, had been fashioned of two bricks on their longer edges. This is the only example we have found of a door-stop of this description.

That rare feature at Mohenjo-daro, a bolt-hole, is to be seen in the northern jamb of the door of room 29, 30 in the western wing of the Palace of Intermediate II date. The bolt which it accommodated must have been a large one, and evidently whatever was stored in this room was of considerable value.

I am inclined to the opinion that flat lintels were more commonly used than corbelled arches, for the reason that the latter require careful shaping of the door. But the two could have been used in conjunction; the corbelling to take the weight above, and a flat lintel above the door. The space between, if only partially filled in, would have admitted air and light, and at the same time have been a decorative feature.

Stairways.

Only one stairway of a new type has been found since 1927. As the photograph in Pl. XXXIII, b, shows, it is a double flight of shallow treads, 8·5 ins. broad and 2·25 ins. high, curiously different from the high narrow treads that are so characteristic of Mohenjo-daro.[2] This double stairway, which is in Block 1A, dates from the Intermediate III Phase (Pl. XVI).

Roofs.

There is reason to think that the roofs of the great majority, and probably of all the buildings were flat, though as might be expected, none has survived. In a climate such as that of Sindh, a flat roof is very necessary for use as a sleeping-place during the hot season. Pieces of mud bearing the impress of reed-matting (Pl. CVIII, 17) that were found in room 34 of House III, Block 11, may once have been part of a roof or ceiling.[3] These mud impressions show that in making the matting whole reed stems were laid side by side and secured with cord.

[1] For another example, see *Mohenjo-daro and the Indus Civilization*, p. 161.

[2] The steepness of these and the similar staircases at Ur was doubtless for the purpose of economising both material and space, a definite desideratum where houses were crowded together. C. J. Gadd, *History and Monuments of Ur*, pl. XXIII.

[3] For a description, see Chap. XVI.

Exactly the same kind of matting is used for roofs in Sindh to-day and is found at the ancient sites of Sumer.[1] It was then, as now, laid across the roof beams and covered with a thick layer of mud to form a floor. Though we rarely find beam-holes, for the reason that few of the walls have remained intact to a sufficient height, four are seen on the inner face of the northern wall in the eastern wing (III) of the Palace.[2]

The comparatively small number of staircases of the Late Ib and Late Ia Phases proves, I think, that few of the houses of those occupations had more than one storey, especially as those few staircases that occur are of no great height. This is what one would expect in a quarter almost exclusively given up to artisans, where the population was doubtless too poor to afford more than the barest conveniences. That the houses had flat roofs in these two phases, as well, probably, as in earlier times, appears likely. In the earlier periods the roofs must have been protected with burnt brick or even a waterproof cement of some kind, such as lime or gypsum plaster, though we have, as yet, found no evidence of it.[3] Flat roofs of mud and gravel require a great deal of attention in wet weather to keep them in repair, and it is as well to state here that we have nowhere found the stone rollers that would have been used to consolidate roofs of this type.[4] Possibly flat wooden mallets were used instead, as in some parts of the Punjab to-day, and, if so, they would not have survived.[5]

Drainage.

As was expected, the lower levels of G Section were found to be as well drained as the upper strata. But not all the earlier drains had survived. Many of them had been entirely removed to supply bricks for the drains of higher levels, except in those cases where a drain of an earlier period was re-used by raising its sides as the levels of the street rose; as, for instance, in West Street in the Late III Phase and at the same time in Main Street (SD Area). The re-use of bricks taken from the drains of earlier periods may perhaps be explained by the Municipality being sometimes unduly careful in the issue of material, so that the unfortunate mason was compelled to do a little excavation to procure bricks for his work.

The street drains received the outflow from the ground-floor rooms by smaller channels and from the upper floors and roofs by sloping or vertical chutes in the thickness of the walls. Both bathrooms and privies were served by the latter, which perhaps also received rain-water from the roofs. On this latter point, however, we are not certain, since there is the possibility that long wooden spout-like gutters poured the rain-water on to the roadways, as in Rohri and other modern Sindhi towns.

For some reason the masons of Mohenjo-daro appear to have taken an especial care in the building of chutes and drains. For example, not only is the jointing of the lower part of the cesspit in Fore Lane outside the western wing of the Palace remarkably fine, but the surface of the brick was also very carefully rubbed down. At the eastern end of Long Lane also, the outfall of the drains

[1] Frankfort, *Tell Asmar and Khafaje*, 1930-31, Orient. Inst. Univ., Chicago, p. 91.

[2] They are seen from a distance in Pl. XXXVII, f.

[3] Both these materials would very likely have survived if they had been used.

[4] Stone rollers are commonly used in the Near and Middle East, as well as in some parts of India, to keep roofs in repair.

[5] They would probably have been kept permanently on the roofs as they are to-day.

from the well-room of House II, Block 8, demonstrates the pride often taken by the mason in his work. This outfall which is of Late III date is quite a work of art and serves to relieve an otherwise most uninteresting wall.[1] And similar devoted craftmanship is evident in the short remaining section of a drain of Intermediate I date on the eastern side of First Street (Pls. XXIX, c ; XLV, a).

It appears that there was also a very elaborate drainage system in the city of Eshnunna (Tell Asmar) in Mesopotamia about 2,500 B. C., which is closely comparable with the drainage system of Mohenjo-daro. The drains of Eshnunna were apparently not so well built as those at Mohenjo-daro and they may have been copied from the Indian system by less experienced masons.[2]

Although we have found nothing comparable with the system of pottery pipes unearthed by Mr. Hargreaves in the HR Area in the season 1924-5,[3] a vertical pottery drain-pipe of Intermediate I date was found in room 34, 35 of House VI, Block 9 (Pls. XVIII ; XXXIX, d) and another of Late I date in the thickness of the northern outer wall of Block 8A.[4]

Chutes.

Chutes were used for the drainage of bathrooms and privies as frequently during the earlier occupations as in later times. They were mostly built in the thickness of the walls, and probably served more than one floor, and perhaps the roof as well. In general, they were square or rectangular in section with the outlet set at angles varying from 30° to 45°. Occasionally, the angle of the outfall was changed once or twice to prevent splashing ; and two instances occur of the actual stepping of the decline, an interesting anticipation of the spillways of modern dams and barrages, whose masonry is treated in exactly the same way. An excellent example is seen in the southern wall of room 4, House I, Block 10 (Pls. XVII ; XLI, c), and another in the southern wall of room 12, 15 of House I, Block 12A. Both these chutes were of Intermediate II date. The very same system of drainage is seen in Sukkur and other parts of Sindh at the present day, both for domestic offices and to carry off rain water from the roofs. In Sukkur open runnels of cement down the outside of a house-wall often take the place of the intra-mural chutes, but a vertical drain of this open type has never been found at Mohenjo-daro.

Mud-brick Platforms.

Mud-brick platforms are found in various parts of the DK Area as well as in other parts of the site. They seem to have been erected solely for the purpose of raising the buildings on them beyond flood-level and are invariably carefully built of sun-dried brick laid in mud-mortar. In the majority of cases damp has so welded these sun-dried bricks together that the whole mass has become homogenous. We have succeeded in a few cases, however, in extracting bricks for measurement, some of which are of the following dimensions :—15×8×3·5 ins. ; 15×7×3·5 ins. ; 14·85×7·3×3·45 ins. ; 13·5×6·1×4 ins. ; 12·5×6·3×4 ins.

[1] Unfortunately, it was impossible to take a satisfactory photograph owing to the narrowness of this part of Long Lane.

[2] Frankfort, *Illust. London News*, July 15, 1933, p. 100, figs. 13 and 16 ; *Iraq Excavations of the Oriental Institute, Chicago*, 1932-3, pp. 29-33, figs. 24-6.

[3] *Mohenjo-daro and the Indus Civilization*, pp. 180 and 280, pl. XLIV, a.

[4] See Pls. CVIII, 30 ; CX, 35, for illustrations of the example from Block 9.

Most of these platforms were built in the Intermediate II Phase after the first great flood of which we have evidence, and some at the beginning of the Late II Phase after the second flood. Even if the lower parts of such a platform remained immersed in water for some length of time, there was no risk of its affecting the houses on the platform by capillary action, as would certainly have been the case if the latter had been built of burnt brick or a filling of rough débris had been used. In some few cases these mud-brick platforms actually enclose buildings of Intermediate III date, but more generally the masonry was first removed for use elsewhere. I have already alluded to a filling of lumps of river clay that was common in early Sumerian sites,[1] but it is doubtful if this was intended to raise the buildings above flood-level; from the nature of the clay used, it is possible that it was regarded as sacred earth and laid down to serve some ritual purpose.

It should, of course, be recognised that the buildings erected on these platforms were almost necessarily at a higher level than other buildings of contemporary date, and due allowance has to be made for this. These mud-brick platforms are, however, not so numerous as to affect the general levels of our plans; their positions are marked in Pls. XVII and XVIII.

These platforms must have been very costly to build and some of them are of considerable size. Their presence, then, argues a high valuation of the positions occupied by them. In the background of Pl. XXVII, b, one of these mud-platforms is clearly seen.

Streets and Lanes.

Curiously enough, though the buildings of the Late Period were inferior to those of the Intermediate Period, we found the streets and lanes to be wider than their predecessors owing to the fact that most of the street walls had a batter whose angle was followed when they were raised.[2] We accordingly find the curious anomaly that whereas in some places the lanes were encroached upon and built over at the latter end of the Late Period, for instance, in the neighbourhood of Block 10 (Pl. XX), elsewhere they were actually wider and more imposing at a time when town-planning had fallen into abeyance.

With only one exception, the streets and lanes of the ancient city were unpaved earth. This exception was a long stretch of First Street which was paved in the Intermediate II Phase, as has already been described in some detail.[3] Seeing that the streets and lanes of the city must constantly have been taken up in order to get at the drains beneath, it is not to be wondered at that they were left unpaved. That the drains were frequently cleaned out is amply proved by the little heaps of sand that we constantly find beside them. This insoluble material must have been washed down from the mud-covered roofs, and it is invariably light-green in colour through contact with the general drainage.

Only those who have lived in the East can visualize the morass these streets and lanes must have become in wet weather. In Mohenjo-daro, as in the modern Indian city, the pedestrian must have experienced the twin discomforts of deep mud underfoot and streams of water from roof gutters overhead, which were no doubt dodged with difficulty, especially in some of the narrower lanes.

[1] *Mohenjo-daro and the Indus Civilization*, p. 265.

[2] The outer side of practically every wall that gave on to a street or lane had a pronounced batter which is clearly seen in many of the illustrations in this book.

[3] See Chapter III.

Watchmen's Quarters.

There is evidence that here and there quarters were provided for watchmen, whose business it was perhaps to guard the streets at night. These quarters were mostly single rooms on corner sites with their doors in important thoroughfares; as, for example, room 35 in Block 6A (Pl. XX) and room 1 of House III, Block 10 (Pl. XVII). Whether or not Mohenjo-daro was divided into wards for its protection and the preservation of order, we do not know; but when we find a wall built across a lane, as, for instance, near the northern end of Low Lane in the Late III or II Phase, it seems that it must have been for this purpose and no other. A city so well planned and administered must have been efficiently policed; and though I have in some places suggested that these single rooms may be lock-up shops, any of them, and particularly those at street corners, might quite as well have been watchmen's quarters.

Lamp-stands.

Provision was made in at least two buildings for the support of a lamp. In the northern wall of the passage 92 of Block 1A, a projecting brick with its upper surface slightly hollowed may quite well have been a lamp itself. And a niche, purposely made to hold a lamp to light the awkward lower steps of the stairway between House II of Block 10 and Building IX of Block 7, still survived (Pls. XVII; XXII, 7).

Kilns.

Several kilns, some of which were undoubtedly used for baking pottery, have been unearthed in the G Section of the DK mound, namely, in room 33 of the southern wing of the Palace, in Block 2, in the courtyard (21, 26) of House II, Block 9, and also in the open space between Blocks 7 and 9. Those in the Palace were of Intermediate II date (Pls. XVII; XXXV, a); they may have been used by an armourer in the making and repair of weapons and tools, and they recall the armourer's shop in the Palace at Kish.[1] All the other kilns, which should probably be assigned to the Late I Phase, probably served for baking pottery (Pls. XX; XXIII, 2; L, b, d), and their presence within the confines of the city marks its final decay, for kilns are objectionable neighbours and it is customary throughout the Near and Middle East to keep them to the outskirts of a town or village.

Burials.

In no case have burials, infant or adult, been found beneath the floors of any of the houses that we have excavated. Nor were foundation deposits, sacrificial or otherwise, placed beneath houses or other buildings, despite this having been a common custom in both the Near and Middle East in ancient times. Some very interesting human remains have been found in various parts of the site, and they are described in association with the various blocks in which they were unearthed. They include a skull and a few bones in the N. W. corner of the western courtyard of the Palace at the Intermediate II level and also a group of skeletons in the well-room of Block 8A and lying on the staircase leading down

[1] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, p. 87. *Cf.* also a forge of the Sargonid Period found at Tell Asmar in Mesopotamia. Frankfort, *Iraq Excavations of the Oriental Institute*, 1932-3, pp. 10-12, fig. 4.

to it (Pl. XLIII, c). These latter remains appear to be of Late Ia date, as were, probably, the nine skeletons found in a pit in Block 10A, photographs of two of which are given in Pl. XXXII, a and b. Yet another, apparently quite a modern burial was unearthed in a shallow grave in room 12 of House II, Block 23, of the Northern Portion of the DK Area.[1] All these remains, except the last, were very carefully removed with the aid of shellac and sent to Dr. Guha of the Zoological Survey, Calcutta, for expert examination. His report on them will be found in Chapter XVIII at the end of this book.

[1] DK 11882. It lay at the level 5·7 ft. below datum.

CHAPTER VIII.

PLAIN AND PAINTED POTTERY.

The undecorated pottery and the ware adorned with simple bands that are described in this chapter are illustrated in line in Pls. LII, LIII, and LV to LXV and by photographs in Pls. LIV and LXVI. In Pl. LXVII examples are given of incised and cut ware. The pottery ornamented in monochrome and polychrome is dealt with in a separate section of this chapter and is illustrated in Pls. LXVIII–LXX.

For the sake of clearness, I have carefully avoided mixing the pottery of different categories in the plates; and all the examples from the upper levels, namely, from the surface of the mound down to 11·9 ft. below datum are given in separate plates from those recovered from the lower levels, *i.e.*, from 12 ft. below datum down to water level. I had at first intended to publish the pottery of the Late Period in a separate book on that period, leaving that of the Intermediate and Early levels to a second volume; but this scheme had to be abandoned with the closing down of the excavations at Mohenjo-daro and the necessity of publishing my results as soon as possible.

The great amount of pottery that has been unearthed in the past five years makes it quite impossible to give a very detailed description of each type—which has, in fact, already been done to a certain extent in the book on the site edited by Sir John Marshall—and only pieces of especial interest are described in detail in this chapter. The tabulation at the end of the chapter will give the reader, and especially the expert on pottery, all the information that he will require in condensed form, together with the locus and level of each piece illustrated.

The comparatively few pottery groups can be studied in Pls. LII, LIII, LVII, LIX, LXIV and LXV. Those found in the lower levels of the Dk Area are far more interesting and varied than those from the upper levels, and the SD Area also produced some very interesting collections.

Plain and Simple Banded Pottery.

Clays.—Most of the undecorated pottery, and also that ornamented with simple painted lines, was made of clay of a good quality that burned pink or light red in colour. This clay sometimes became rather porous and even fissured on being baked, owing perhaps to insufficient kneading, but it answered the purpose extremely well and very creditable specimens of the potter's art were made with it.

Sometimes, however, a clay was employed that burned grey. That the use of this material was not confined to any particular type of vessel proves that jars of this grey ware were not importations as might have been suspected, though the clay itself may conceivably have been imported. Clay of this kind apparently required no tempering, and only in exceptional cases was any other substance mixed with it for this purpose.[1] Whether, the colour of the pottery made from it was natural or was darkened by the admixture of some carbonaceous material with the clay has yet to be determined. I am inclined to think that as this pottery varies considerably in tint something was added in varying proportions

[1] Noticeably in the dish in Pl. LVI, 40.

with the purpose of darkening it. This grey ware is illustrated in Pls. LII, 7, 34; LV, 7, 11, 34; LVI, 40, 44, 54; LVII, 25; LXI, 48, 72; LXII, 13, 40, 42; LXIV, 14, 36; LXV, 2, 23; LXVI, 14, 54; and LXX, 1–4. Though on the whole somewhat uncommon, it is just as frequently found in the lower as in the upper levels, or perhaps more so; and one example (Pl. LXII, 42) has been found as low as 33 ft. below datum.

The outer surface of this grey ware is generally polished or semi-polished, and was sometimes darkened appreciably thereby; but the vessels illustrated in Pls. LVI, 40, 44, 54; LXI, 48; LXII, 40, 42; LXIV, 14; LXV, 2, are coated with a black or very dark-coloured, semi-polished slip, whose composition we have not yet been able to ascertain. This slip has nearly disappeared from some of the vessels, and wherever it is absent and the surface is unpolished it is reasonable to assume that it once existed.

The black or dark-coloured slips can be produced in various ways. Lamp-black or powdered charcoal added to the levigated clay will make such a slip, or a lustrous black surface can be produced by smothering the vessel when red hot in coarse sawdust, corn-cobs or the like.[1] Rubbing the surface of the jar with some kind of resin, gum, or soot mixed with oil is resorted to for this purpose in Africa, America, and other parts of the world at the present day.[2] And in some districts of India, the juice of *Tuthi* (*Abutilon indicum*) is used to give a black gloss to earthenware.[3]

Nos. 1–4 in Pl. LXX were definitely glazed and are fully described elsewhere.

It is significant that grey ware was also used in ancient times in other countries outside India. It has been found in Sumer—but in small quantities only, as at Mohenjo-daro.[4] It appears among the Danubian wares, and the well-known Minyan grey ware was introduced into Greece by a people whose origin is still a mystery.[5] It also occurs sporadically in other ancient civilizations. A remarkable feature of much of this grey ware is the soapy, unctuous feeling that it has to the touch—a quality shared by the examples from Mohenjo-daro—which is especially noticeable in the jars which have no slip but merely a polished or semi-polished surface.

A third kind of clay used at Mohenjo-daro produced a ware of a very light pink colour and exceptionally compact in texture. Whether this clay was superior to that ordinarily employed or merely a very carefully levigated variety of the latter, I do not know; but it was only occasionally used and mostly for jars of unusual shape and thin fabric.[6] This kind of clay was never tempered with any other material and the pottery made from it always breaks with a clean fracture. This ware is certainly more common in the upper than in the lower levels.

[1] MacIver, *Man*, June, 1921, p. 87. Lucas, *Journ. Anthrop. Inst.* (1929), pp. 117-9.

[2] Harrison, *Pots and Pans*, p. 51.

[3] *Ann. Rep. Arch. Dept.*, H. H. The Nizam's Dominions (1915-6), p. 8.

[4] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. I, p. 140.

[5] *Camb. Anc. Hist.*, vol. I (Plates), p. 106. Dr. Goldman would also identify this ware with the grey ware of Anau. See Gordon Childe, *Antiquity*, Sept., 1932, p. 384. Mr. Mallowan has unearthed grey burnished pottery at Nineveh in his culture No. 3, which he dates between 5,000 and 4,000 B. C. *The Times*, Sept. 8, 1932, p. 6. See also *Annals of Archæology and Anthropology, Liverpool*, vol. XX, pp. 163-5.

[6] For instance, Pls. LV, 26; LVI, 42, 53; LXI, 40, 47.

Tempering Materials.

The dégraissants used were mica, sand and lime; alone or, more rarely, in combination. Mica is very common and betrays itself by its sparkle. This substance is very frequently found in the sand on the banks of the Indus and is readily extracted from it by levigation. It is especially useful as a tempering material in that when properly mixed with the clay it greatly adds to the ease of working the latter on the wheel; it also facilitates the drying of the pottery without cracking.

Lime is commonly present in the fabric of both small and large jars. Curiously enough, it sometimes occurs in lumps of quite appreciable size; indeed, extra large fragments of lime have even flaked off the surface of some of the jars through the swelling due to slaking.[1] It cannot be imagined that these large particles of lime were added purposely, and we can only conclude that their presence is due to imperfect sifting of the lime after being burned, or that, possibly, it was added to the clay in an unslaked condition. Occasionally, a certain amount of dirt was gathered up in the clay from the kneading floor, probably by accident.

The presence of lime as a tempering material is by no means confined to the wares of Mohenjo-daro. It has been detected in the Nal and other wares of ancient Balūchistān,[2] in some of the Al-'Ubaid ware,[3] the Jemdet Nasr ware,[4] and in much of the Predynastic ware of Egypt.[5] The particular use served by lime as a dégraissant still remains a matter of opinion, but with certain clays it appears to be an indispensable ingredient and it has been mixed with them from the earliest times.[6]

Firing.

The pottery of Mohenjo-daro was well baked. The resulting fabric was hard enough to stand a considerable amount of knocking about, and its uniformity of colour shows that the potter had considerable control over the heat of his furnace. Even some of the larger storage jars, which may be as much as 1·02 ins. thick, were so well baked that the colour is constant right through.

We have found comparatively few over-baked vessels that had been put into use; nor do I remember a jar or potsherd that could be said to be underfired,[7] though some mistakes must have been inevitable. The firing of a jar appreciably altered its colour, changing a light grey clay to a pinkish-red shade owing to the chemical action of the small amount of iron in it. Those very few specimens which are definitely over-fired have a distinctly greenish hue, which is due to the presence of a complex ferrous compound in whose formation lime plays an important part.

[1] Care had to be taken in the use of lime, for even when mixed with the clay in a slaked condition the subsequent firing of the pot would reverse this state, and slaking would again take place under conditions of damp.

[2] Hargreaves. *Mem. Arch. Surv. Ind.*, No. 35, p. 35.

[3] Hall and Woolley. *Al-'Ubaid*, p. 162.

[4] *Anthropology Memoirs*, Field Museum, Chicago, vol. I, p. 233.

[5] *Camb. Anc. Hist.*, vol. I, p. 243.

[6] Some clays contain no admixture of lime, noticeably the prehistoric painted wares of Honan, China. Arne, *Palaeo. Sinica*, pt 2 (1925), pp. 8, 9.

[7] Except the very thick sherd painted in monochrome seen in Pl. LXX, 28, which has a dark core due to imperfect firing.

Kilns.

In the previous book on Mohenjo-daro, we assumed for lack of evidence that the kiln used for baking pottery was an open one like that in use in many parts of Sindh at the present day.[1] In the more recent excavations, however, we have found quite a number of kilns, which judging from the masses of potsherds around them were exclusively used for the baking of pottery. The remains of two such kilns were unearthed in Block 2, and a better preserved one in court 21, 26 between Houses I and III, Block 9 (Pls. XXIII, 2; L, b, d). There was also a very large, and apparently unfinished kiln in the open space at the north-western corner of Block 7 (Pl. XX). Full details of the sizes and structure of these kilns are given in the general description of the DK Area and its buildings (pp. 62, 102). In general principle they resemble the pottery kilns of Kish, which are dated approximately to 2,800 B. C., or perhaps even earlier.[2] The main features in both cases are a pit for the wood or reed fuel and a domed compartment above to hold the vessels to be baked, communication between the two being effected by round holes in the floor of the upper chamber; but at Kish the kiln is rectangular in shape, whereas at Mohenjo-daro a round kiln was preferred. Though round kilns also have been found at the former site, their large size suggests that they were used exclusively for baking bricks.[3] At Jemdet Nasr, M. Watelin found kilns which are very similar in shape to those of Mohenjo-daro,[4] but he described them as bread ovens. At Susa, a rectangular kiln which resembles those that I found at Kish is dated to the Second Period.[5] A potter's kiln of an advanced type was, then, in use in Sindh, Elam and Sumer at a very early period, and the examples found by Watelin at Jemdet Nasr, if they should also prove to be pottery kilns, carry the enclosed type of furnace back to well before 3,000 B. C.[6]

It is, therefore, somewhat remarkable to find that a very primitive open furnace is used by the Sindhi potter of the present day in the villages around the site, when so efficient a kiln was used not only by the potter of Mohenjo-daro some four and a half-millennia ago, but also by his contemporaries in Sumer and Elam. The advantages of the closed oven, which Harrison explains was originally derived from "the practise of enclosing a fire with clay to concentrate the heat and subsequently raising the surrounding wall to a dome",[7] are that the heat can be graduated by flues according to requirements, with a corresponding saving in fuel and the avoidance of smoke stains. None the less, the open method of firing pottery, and painted ware at that, which is now employed in Middle Sindh produces wares that are just as well baked and quite as good in colour as the pottery of Mohenjo-daro. In other words, the successful baking of pottery does

[1] Mackay, "Painted Pottery in Modern Sind." *Journ. Royal Anthrop. Inst.*, vol. LX (1930) pp. 127–35.

[2] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. I, pp. 115, 116; pl. XXXI.

[3] *Op. cit.*, p. 116.

[4] Field, *Anthropology Leaflet*, No. 11, Field Museum, Chicago, pl. XII.

[5] *Mém. Dél. en Perse*, t. XX, pl. III, fig. 16.

[6] Sir Flinders Petrie now reports the finding of kilns of the period of the Twelfth Dynasty of Egypt at Tell el-Ajjul in Palestine, which, he says, are of the modern type with a perforated table on which the pottery was placed with the fire beneath it. *Exhibition Catalogue*, Univ. Coll., London, 1931, p. 5.

[7] *Pots and Pans*, p. 22.

not always depend on the type of furnace used, though the more elaborate the furnace, the less the fuel needed and the fewer the cracked and mis-shapen vessels.[1]

Muffles and Crucibles (?)

We have found several pieces of pottery that appear to have been used either in connection with a kiln or, in one case at least, as a crucible. No. 23 (DK 8982) in Pl. LIV is thickly coated with a mixture of sand and clay, and there can be no doubt that it was expressly constructed to withstand heat. I am of opinion that it served either as a crucible or, more likely, as a muffle for firing glaze. This very unusual vessel, which comes from the upper levels, is dealt with more fully further on in this chapter (*Group T*).

No. 15 (DK 9760) in Pl. LXVII, a thin pottery plate, 4·17 ins. in diameter and 0·2 in. thick has a thick cement of mud and straw round the edge which shows signs of burning. This plate was evidently used to seal up the flue of a furnace, and similar plates with a similar cement are used for the same purpose in India at the present day.

The small open vessel (Pls. LXI, 72; LXVI, 14), which was found with two others of the same shape and size, is a grey paste that was heavily fired apparently more than once. This vessel, which has a fairly smooth interior though it is rough outside, may have been used as a kind of muffle.

Slips.

The slip most generally used on the unpainted ware was cream-coloured; sometimes with a yellowish tinge, sometimes almost white. It varies very much in thickness, from a mere wash through which the colour of the paste beneath shows clearly to quite a thick layer which is sometimes apt to scale off. A slip of red oxide was used for most of the better-class pottery, whether painted or unpainted. A third, and somewhat rare slip was chocolate-coloured; for example, on the vessels illustrated in Pls. LV, 26; LVI, 7, 9; LVII, 34; LX, 31, 49, 52, etc. On vessels of the type seen in Pl. LV, 26; LXV, 47, this third slip occurs very frequently; why, it is difficult to say, unless these jars were intended to contain a dark-coloured liquid or substance that would produce ugly stains or drip-marks. This dark slip, it should be noted, was invariably used on the upper part of the jar or rim. It was sometimes applied direct to the pottery, but more usually over a preliminary red slip or wash, that was obviously intended to darken the second slip which may not have had much body.

A rare purplish wash applied to the surface of the curiously shaped jars in Pls. LVI, 10; LXV, 21, overlies a red wash. The lower colour appears as a rough band of red round the widest part of the jar. Neither the purple nor the red wash was applied over the whole of the jar; a considerable portion of the base was left uncoloured, save for a cream wash or slip. These chocolate and purple slips took their colour from manganese, apparently sometimes mixed with a little red oxide, and they are often seen on large storage jars, which they were perhaps intended to render waterproof.

[1] I have not been able to ascertain exactly what losses are incurred by using the open method of firing. Judging from a refuse-heap beside one of the Sindhi firing-places, it must be fairly considerable.

Occasionally, a very light pink slip is met with (Pls. LV, 26; LVI, 21, 36; LX, 1, 12, etc.) possibly produced by a little red ochre having been accidentally mixed with the ordinary cream slip. But the presence of a small quantity of iron would also produce a pinkish tint, and this seems to be the more probable explanation of this colouring.

In some cases, two coloured slips were used on the same vessel; both red and cream occur on the jars in Pls. LVI, 17, 31, 39; LVII, 21; LX, 5, 32, 56, 60; LXI, 62, etc. The fine jars in Pls. LV, 26; LX, 31; LXII, 36, have both chocolate and pink slips; and No. 10 in Pl. LVI has slips or washes of no less than three colours.

Very rarely was a slip or wash applied to the underside of the base of a vessel —chiefly for the reason that it would not be seen under ordinary circumstances; it is also a proof that most of these slips were applied before the vessel was detached from the wheel. The vessels illustrated in Pls. LV, 8; LVI, 4, 5, 17; LVII, 34; LXIV, 58, are, however, exceptions. All these vessels are unusual in shape, especially No. 4 in Pl. LVI, which actually has the same pattern painted on the thick white slip which covers the interior of its hollow foot as on the outside of the vessel. No. 5 in Pl. LVI and No. 34 in Pl. LVII, both of which are small, were doubtless made for toilet use and were accordingly well finished all over, No. 5 with a dark-red and No. 34 a chocolate-coloured slip.

Trimmed Vessels.

The trimming of the lower part of a vessel with a knife or similar instrument is quite a common feature of the pottery of both lower and upper levels; nor was it confined to the vessels of coarser make. Sometimes it was carefully done, but more frequently it was left until the pot was too dry and the clay was consequently dragged by the knife. The direction of trimming is generally vertical. The jar in Pl. LV, 25, was carefully scraped from neck to base, and most of the surface of that in Pl. LV, 24 (see also Pl. LIV, 11) was scraped with a flat tool whilst still on the wheel. Other vessels of which the lower portions were trimmed are those seen in Pls. LV, 26–30; LVI, 3, 7, 11, 19, 29, 35, 36; LVII, 15, 24, 28, 29. No. 16 in Pl. LXVII shows an enlarged view of the lower part of a vessel that was trimmed in this way. On No. 15 in Pl. LVII and Pl. LXVI, 40, a flint seems to have been used, and the deep combmarks left by it suggest that the flake had become notched with use.

I shall frequently allude to the scoring of the upper parts of certain vessels, which is not to be confused with the paring of vessels; the upper part of No. 16 in Pl. LXVII was scored with a very sharp tool, which was perhaps a metal comb.

The trimming of the lower parts of pottery vessels was by no means confined to Mohenjo-daro. The bases of many vases of the Old Kingdom of Egypt were finished with the knife and this practice prevailed down to the Twelfth Dynasty of that country.[1] Trimming is also seen on Macedonian ware (Period D),[2] and on cups and bowls from the Early Minoan II to the Middle Minoan I Period.[3]

[1] Brunton, *Qau and Badari*, II, p. 4.

[2] *B. S. A.*, vol. XXVII (1926), pl. XXII, fig. 8.

[3] Evans, *Palace of Minos*, vol. I, p. 75. It must be remembered, however, that these vessels were not made on the quick-wheel.

It is thought that some of the prehistoric painted ware of China was trimmed to remove traces of the fluting due to throwing.[1] And I have noticed traces of paring on some of the early Kish ware, while there are examples among the Jemdet Nasr pottery[2] of jars being pared some distance up from the base.

Possibly this paring was made necessary by the potter not being able to see what he was doing with the lower part of a jar ; that is, if we suppose that the hand-spun wheel was used as it still is in many parts of India. This type of wheel is only a few inches above the ground on which the potter sits, so that his eyes are well above the level of his work. He would, then, find some difficulty in seeing the base of the jar which he is raising without bending right down, especially if the body of the jar has any considerable bulge.

No. 3 in Pl. LVI is peculiar in that its once flared mouth was accidentally broken and was rubbed down by the careful owner to restore it to symmetry, and the same happened to No. 11 in the same plate. In No. 32 in Pl. LXI, it was the flared base which had been accidently broken and carefully rubbed down to make it flat again. These three vessels were evidently valued by their owners.

Hand-made Wares.

Hand-made ware is uncommon in the upper levels, but we have a good many examples from the lower levels, and especially from the lowest to which we have cleared which is exactly what one might expect.[3] The shapes, it will be noticed, are in the main variants from the usual types, and it is conceivable that many of them were made and baked at home. As is usual with hand-made ware, many of the jars have no slip. What slips there are—mostly red washes—were applied very roughly and never polished. We should hardly expect to find much hand-made ware at Mohenjo-daro, for the reason that the potter's art was so well developed in all the occupations to which we have penetrated that the shapes that were made had become more or less stereotyped. One might almost say that very few of the pottery vessels show any archaic traits—evidence that the craft was well established and had a very considerable period of development behind it.

The upper parts only of No. 8 in Pl. LX and No. 1 in Pl. LXI appear to have been made on the wheel, their stands being fashioned by hand.

Suspended Vessels.

This type of vessel is rare ; moreover, it is possible that the holes occasionally found in the necks and rims of several of our finds were intended merely to take a string to serve as a hinge for, or even to tie down the lid. No. 7 in Pl. LVI (see also Pl. LIV, 10), for instance, with its broad flat base is hardly the type of jar that would be hung up, and yet it has a hole, 0·08 in. in diameter, on either side of the neck. It is certain, however, that No. 4 in Pl. LX was meant to be suspended ; and so were the vessels in Pls. LX, 51 ; LXI, 5, 7–9, 40, 45 ; LXII, 39 ; LXIV, 10 ; LXV, 22 ; LXVI, 36, 49, each of which has three small holes at more or less equal distances from each other close to the rim of the jar. The holes in the lugs of the handled-cup type of pottery (Pls. LVII, 14, 15 ; LXII, 14–20, 22) (See also Pl. LXVI, 6, 7, 35) were undoubtedly intended for the cord by which these cups were hung up.

[1] *Palaeo-Sinica*. II (1925), p. 11.

[2] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. I, p. 230.

[3] See tabulation at end of chapter.

Perforated Ware.

Excluding the utensils of *Type AF*, which come under a different category, a few pieces of very interesting perforated ware have been found which from their flatness seem to have been parts of square or rectangular boxes or stands. Quite conceivably, pieces of perforated pottery may also have been used as gratings to fill up windows or ventilators to prevent the ingress of birds or other creatures.

We have found no further examples of stone or pottery grills at Mohenjo-daro, and their rarity may perhaps be explained by the majority of grills being made of wood; for that gratings were used extensively is extremely likely. All those found are small for use in ventilators, and there is at present no evidence that there were grilled windows in quarters occupied by women.

Very similar gratings to those found early in the work at Mohenjo-daro[1] have been unearthed at Tell Asmar (Eshnunna), made of pottery but with round instead of diamond-shaped holes.[2]

The fragment of perforated pottery (DK 10608) in Pl. LIV, 9, which is very nearly flat is 2·5 ins. long and 0·28 in. thick. It is made of the usual light red clay, coated on one side with a thick cream slip. The triangular incisions were roughly cut out with a knife before baking, and no attempt was made to smooth the cut edges. The lower right-hand edge of the sherd is smoothly finished off. Locus: Bl. 8, ho. III, rm. 48. Level: – 2·6 ft.

No. 43 (DK 3405) in Pl. CV is part of a heavy round stand with cut-out apertures alternating with hatched metopes.[3] This sherd is 4·25 ins. long by 0·88 in. thick, and is faced with a cream slip. All the edges except those of the perforation are broken. The broad vertical band of double-hatching was apparently done with a knife. Since incised work of this kind is of very rare occurrence at Mohenjo-daro and it is in this case associated with open incisions, there is the possibility that the stand was imported. Locus: Fore Lane, between Bls. 4 and 7. Level: – 5·4 ft.

Of the perforated pieces, Nos. 7-11 in Pl. LXVII, the dimensions and general features are given in the tabulation at the end of the chapter; their peculiarities only need be mentioned here. The pronounced curvature of No. 7 suggests that it is a portion of an offering-stand. It is roughly cut, with a design with which we are familiar on the painted pottery. It is coated on the outer side only with a cream slip. No. 8 is light grey pottery and is the first example of the use of this material for this type of ware. Its flatness suggests that it is part of a window-grating, or it may be a piece of a box or stand. Nos. 9–11 were all found together with another piece and appear to be parts of the same object, which was probably a box or window-grating with a very wide plain edge. All these pieces are coated on one side with a thick white slip.

There is evidence on Nos. 8 and 10 that the pattern was scratched on the unbaked clay of this perforated ware to guide the work of the cutter; some of these marks remain, though they should all have been removed in the process of cutting the incisions. All these pieces are, however, very roughly worked and the

[1] Marshall, *Mohenjo-daro and the Indus Civilization*, p. 465, pl. CXXXIII, 10, 11.

[2] Frankfort, *Illust. Lon. News*, July 15, 1933, pp. 97, 98, fig. 9; *Iraq Excavations of the Oriental Institute*, 1932-3, p. 14, fig. 9. These are approximately of the same date as those found at Mohenjo-daro.

[3] That this sherd is correctly placed on the plate is shown by the wheel-striations on the back of it.

complete removal of the guide lines was evidently not thought to matter. This kind of pottery was made very early in the occupation of Mohenjo-daro, for No. 8 was found 29·9 ft. below datum.

No. 6 in Pl. LXVII is also a fragment of this cut ware, but it is distinguished from the rest by being painted in polychrome and also bearing an incised pattern. This piece is more fully described in the section on the incised pottery.

The method of decorating pottery vessels and other objects by cutting had a considerable range in ancient times. It is seen in some of the offering-stands from Susa, and in Egypt from Predynastic times down to the Sixth Dynasty.[1] A very fine example found at Kish is dated approximately to 3,100 B.C.,[2] and stands of a shorter type have also been recovered from Samarra in the same country.[3] The sherd No. 6 in Pl. LXVII may conceivably once have formed part of a square stand similar to one unearthed at Susa, whose exact use we do not yet know,[4] but No. 7 in the same plate is certainly a fragment of a round stand. None of the above mentioned examples from elsewhere have the holes so close together as in the Indus Valley specimens, but it is important to note that in the cases referred to the perforations are in general triangular in form, and that they were cut with a sharp instrument before baking.

Perforations of this kind would have been useful in reducing the weight of jar stands; and if the stand were used for a water-jar, the holes might have promoted evaporation from the vessel itself or of the water which percolated through. Where, however, the perforations are close set with very narrow partitions between, as in No. 9 in Pl. LIV, we must consider the possibility that they were supposed to have some decorative value.[5]

Pot-marks and Inscriptions.

Pot-marks are rarely found, as was stated in the first book on Mohenjo-daro. The more recently unearthed inscriptions were all cut after the vessels had been baked. The best examples are seen on the storage jars in Pls. LVII, 35, 36, 38, 41, 42; LVIII, 4; LXIII, 1, 3, 6. Those in Pl. LXIII are easy to read, for they were written on the sides of the jars, but this was not the case with the marks on the rims of the jars, Nos. 41 and 42 in Pl. LVII. No. 41, in fact, is marked in three places altogether, namely, a group of three very distinct signs well down on the shoulder, an isolated sign (Pl. LVII, 35) on the rim and the rough scratches on the other side of the rim that are reproduced in Pl. LVII, 38. The very indistinct marks on the beaded rim of No. 42 appear in facsimile in Pl. LVII, 36.

[1] De Morgan, *La Préhistoire Orientale*, t. II, pp. 284-5, figs. 328–30.

[2] *Cf.* the stand illustrated by Langdon in *J. R. A. S.*, 1930, pl. IX, 4, p. 604. These stands from Kish which are sometimes perforated all over doubtless derive their shape from a stand of reed or cane similar to that extensively used in India to-day as a stool or to support a tray and called a mādhā. See Mackay, "A Sumerian Representation of an Indian Stand," *J. R. A. S.*, April, 1933, pp. 336–8, pl. IV.

[3] Herzfeld : *Samarra*, V, pp. 37, 38, pl. XXI.

[4] *Mém. Dél. en Perse*, t. VIII, p. 80, fig. 108.

[5] We must, I think, rule out the possibility that this particular sherd is part of a window-grating, for it differs in several respects from the stone and pottery gratings that were used at Mohenjo-daro.

Of the characters inside the rim of the storage jar in Pl. LVIII, 4, one is similar to No. ccxli of the sign list prepared for the first book on Mohenjo-daro by Mr. S. Smith and Mr. C. J. Gadd,[1] but with the two oblique short strokes after, instead of before the main portion of the sign, and well separated from it. It is quite possible that these two strokes are not an accent, but a separate sign or numeral. The sign on the shoulder of the same jar does not appear in the sign-list mentioned above, nor can I find it on any of the more recently found seals. It is apparently derived from a plant and may have indicated the contents of the jar.

The two graffiti (DK 6986) reproduced in Pl. LXIX, 4, 5, are of especial interest. They can hardly be termed pot-marks, for they were scratched on the opposite side of a sherd, possibly by a child. It is very rarely that we find potsherds used as writing or drawing material; and in ancient times the children of Sindh evidently used some other material on which to practise writing.

No. 4 is of great value, in that it is the first representation of a boat that has been found at Mohenjo-daro.[2] Though only roughly sketched, it conforms with the typical archaic representation of a boat in other countries; it has a sharply upturned prow and stern and is apparently controlled by a single oar. The mast may possibly be a tripod, and one or two yards are shown, or, conceivably, one only, the second line representing a furled sail.

Boats of this type must have been very familiar to the people of Mohenjo-daro living as they did beside the Indus or a branch of it. The high prow and stern would be especially suitable to a river-boat in that cargo could by this means be safely landed on a shelving bank; but it must be borne in mind that similar boats in ancient Egypt and elsewhere are said to have been used for sea as well as river traffic. Very similar boats still ply up and down the Indus, carrying commodities of various descriptions; but in these days the stern is somewhat lower than the prow.

The signs scratched on the reverse of this same sherd, which appears to be part of an almost flat dish coated with a smooth, light red slip, are already familiar to us on the seals and will be found in Messrs. Smith and Gadd's sign-list (Nos. xi and lxxxviii).[3] The five vertical strokes appear in combination with the second sign in all the examples given in the sign-list. Locus: Bl. 9, ho. VI, rm. 38. Level: – 9·4 ft.

In general, pot-marks or inscriptions are only found on the larger jars, but we have lately unearthed a small dish or jar-cover(?) with two signs scratched on it (Pl. LXI, 51). A sign scratched on the flat edge of the dish in Pl. LXI, 58, was probably an identification mark. Both these dishes come from the lower levels.

A vessel (DK 9117) from the level 18·6 ft. below datum similar in shape to that in Pl. LX, 15, had an impression on the shoulder, apparently made with a seal of *Type F*. The pictographic signs in this impression are very indistinct.

1 *Mohenjo-daro and the Indus Civilization*, pl. CXXV.

2 We have since found the outline of a boat scratched on a re-used seal, mastless, with a cabin and a man at an oar (Pl. LXXXIII. 30).

3 *Mohenjo-daro and the Indus Civilization*, pls. CXIX; CXXII.

A sherd (Pl. LXVII, 5) from the level −21·8 ft. that was part of a jar which had been badly overfired and blackened, also bears an impression, in this case made by a square seal of *Type A*. The three signs in this impression are moderately clear and, reading from the left, are Nos. ccxxxviii, li, li, in Messrs. Smith and Gadd's sign-list.

Comb-work.

The sherd (DK 8146) illustrated in Pl. LIV, 19, was apparently scored by a comb while the vessel was on the wheel. Its drab paste contains a considerable amount of lime and mica, and the yellowish-cream surface may be due to the presence of a slip. This sherd is 3×4·5 ins.×0·27 in. thick and its curvature shows it to have been part of a fairly large vessel. Locus: between Bls. 11 and 12A. Level: − 9·7 ft.

The decoration of pottery jars by scoring them with a comb or similar instrument is not at all common at Mohenjo-daro. Save for the above mentioned sherd from an upper level and the vessels in Pls. LXIV, 55 ; LXV, 12 (see also Pl. LXVI, 19), 40, which are all three the same type and from the lower levels, only the very common type of vessel in Pls. LV, 12–18 ; LX, 14–17, was scored with a comb, which must have been shifted in the process for the lines are always spiral, and wider and deeper than in the usual scored ware.[1] Pl. LXVII, 16, is an enlarged view of a scored vessel, whose base had been pared with a knife.

Incised Ware.

Ware that was incised otherwise than by means of a comb is very rare in the upper levels and those small pieces of it that have been found are not sufficiently large or important to be photographed. From the lower levels, however, quite a few pieces have been unearthed which merit description in detail, though the general characters are noted in the tabulation.

Plate LXVII.—The very curious incised ware illustrated in Pl. LXVII, 1, 2, was found at the level 30·4 ft. below datum—these two pieces were evidently parts of the same vessel, together with four other bits, all of a light grey ware of medium thickness which sometimes has a greenish tinge. This jar had no slip and the surface was decorated with long curved lines by means of an edged tool which slightly raised one side of each cut, rather like the clods turned up by a plough. Probably the same tool was then lightly run at right angles across the ridges thus produced, so as to give a toothed effect.

Nos. 3 and 4 show a very unusual ware, not found anywhere above the level 31·8 ft. below datum, light red, moderately thin, and containing a great deal of lime. This ware was coated with a white slip which was subsequently partially removed with a comb, which in the process was joggled slightly so as to produce a number of parallel wavy lines, to show the body of the ware. This " reserved slip ware ", as it is called, is exceedingly rare at Mohenjo-daro and may be an importation, though it is impossible as yet to say whence it came. It occurs in the early levels of Kish and Ur,[2] though it also seems to be scarce at both those sites. At Ur and Mohenjo-daro, it was a light slip that was removed from a darker

[1] Perhaps a very coarse wooden comb was employed.

[2] Woolley, *Antiquaries Journal*, vol. X, pp. 331, 339.

body, but in the specimen that I have seen from Kish it was a dark slip that was taken from a lighter body.[1]

No. 6, which was found at the level − 30·5 ft., may, as already mentioned above, be part of a pottery box. Just below its smooth upper edge is an incised border of linked fusils, of which the lines were filled in with red in contrast with the ground which had apparently been coloured white. The upper part of the sherd is black, and below the border it is coloured green. There is part of a V-shaped cut on the right-hand side.

No. 12 is a ring-stand of very unusual shape with a zig-zag pattern incised upon its upper surface, more probably to prevent the jar that was set upon it from sliding about than as a decoration.

No. 17 is part of the dish of an offering-stand, in the centre of which a number of small lunate incisions were made in four concentric circles, probably with a split reed. This dish was coated with a cream slip save for a broad edge of red wash round the outer margin.

No. 18 also is part of the dish of an offering-stand with its centre decorated by means of a similar tool. In this case the ornamentation was carried inwards right to the centre of the dish.

No. 19, a similar fragment of an offering-stand, bears an uneven design of curved radial lines, which I think were made with the edge of a shell ; experiment has shown that a cockle-shell will produce exactly similar marks on damp clay.

In No. 20, which is also part of an offering-stand, the deeply incised lunate marks were so carefully impressed that although they were probably made from the outside inwards they appear to have been arranged along the radii from the centre of the dish.

Its very great thickness (0·8 in.) and the absence of curvature suggest that No. 21 was part of the base of a large pan. The design of very carefully incised overlapping circles is already quite familiar to us from the painted pottery and other articles from Mohenjo-daro and Harappā. The rim of a small jar was probably used to impress the circles on the clay before baking.

No. 22 also is part of the dish of an offering-stand with the lunate incisions so arranged as to give to the casual eye the semblance of an ammonite shell. Like the other tops of offering-dishes, this fragment has a cream slip and is bordered by a deep band of red.[2]

The motif on No. 23 (Pl. LXIII, 11), which is part of the base of a very large pan, was apparently impressed by a wooden stamp. It is composed of a number of concentric circles cut by common radii. Though this pattern is very familiar, I am unable to recall where I have seen it elsewhere.

No. 24, which is 0·6 in. thick, was decorated in much the same way as No. 21, except that the circles were more closely linked together in a series of chains.

The design of No. 25 appears to be too regular for each curved line to have been put in separately, and it is probable that a wooden stamp was used. This sherd also was part of the dish of an offering-stand and has the usual red border.

[1] Found by M. Watelin, and now in the Ashmolean Museum, Oxford.

[2] *Cf.* a sherd found at Mehī-damb in Balūchistān ; Stein, *Archæological Tour in Gedrosia*, pl. XXX.

The flatness and thickness of No. 26, together with the squares incised upon it, suggest that it is part of a tile.[1] The intact "square" is 2·85×3·08 ins. We have not yet found a floor of imitation tiles, but it is not at all improbable that some such cheap method as this was sometimes employed to give the appearance of a floor of small tiles. This tile was covered with a deep red slip, and as this slip extends into the kerfs it is evident that they were made before baking unless the coloration was produced by bare perspiring feet (see p. 166).

No. 27, which is 0·62 in. thick, is doubtless part of the base of a large pan, inside which a design was impressed with a stamp whose irregularities are seen to be repeated several times, though some confusion in the pattern was caused by the overlapping of the impressions.

It should be pointed out that owing to the lighting some of the illustrations show the designs on these sherds as if in relief. All were incised, and some of them very deeply. As will already have been noticed, these incised patterns were only used to ornament the dishes of offering-stands[2] or the inside of very large pans. I have before suggested that in the large pans the roughening produced by this mode of ornamentation would be useful in husking grain.[3] But why the dishes of the offering-stands should have been so treated is not yet clear; possibly, in this case the designs were intended solely as decoration.

I would like to emphasize the fact that the ornamentation of the dishes of offering-stands with incised designs is so far as we know at present confined to the lower levels. The highest level at which we have found this incised decoration is 16·2 ft. below datum (Pl. LXVII, 25) and the lowest 36 ft. below datum (Pl. LXVII, 19). The custom of decorating the margins of these dishes with a red slip or wash also appears to be confined to the lower levels, though the offering-stands of later date are frequently reddened all over or decorated with red and, more rarely, black lines.

Several of the patterns recall shells and as I have already pointed out, some of them were actually made with a shell as a tool. That the people of Mohenjo-daro were well acquainted with marine shells is proved by their skill in manufacturing various articles, such as inlay and bangles, from this material; and one wonders if they held fossil shells in particular veneration No. 22 in Pl. LXVII is not at all unlike an ammonite in appearance, and at the present day great respect is paid to a certain species of ammonite (*Saligram*) by worshippers of Vishnu.[4]

Occasionally but rarely, hand-made pottery vessels were decorated with incised designs (Pl. LXVI, 23, 25, 43). No. 23 is a very unusual vessel and the incised lines evidently represent the thick fleece of a ram. No. 25 is somewhat roughly decorated with horizontal rings pricked with a fine point before baking; and No. 43 is ornamented all over with lines roughly dented with the corner of some kind of edged tool.

[1] The roughness of the back of this object suggests that it is brick.

[2] All these dishes seem to have belonged to the thin-stemmed type of stand illustrated in **Pl. LX,** 3.

[3] *Mohenjo-daro and the Indus Civilization*, p. 291.

[4] Crookes, *Folklore of Northern India*, p. 183.

Kushan Pottery.

In the excavation of the SD Area, we unearthed a number of potsherds that bear Brāhmī inscriptions. These have been deciphered by Mr. N. G. Majumdar of the Archæological Survey, whose translations are given with the description of each piece.

Plate LXXI.—No. 2 (SD 2951). 3·3×2·6×0·29 ins. Bears the following roughly scratched inscription[1] :—*Bhadata (Sagha) rakshasa ayu kara (ka)* ; "this is the drinking vessel of the venerable Saṁgharaksha." Locus : Bl. 10, rm. 4. Level : – 3·3 ft.

No. 11 (SD 3088). 3·44×1·43×0·23 ins. The human figures painted in white on the polished black slip of the grey pottery probably have no real meaning. Locus : Bl. 8, rm. 1. Level : – 1·4 ft.

No. 16 (SD 2791). 2·16×0·81×0·3 ins. *Pravrajitasa* ; " . . . of the ascetic . . . . . " Locus : Bl. 8, rm. 7. Level : +2·8 ft.

No. 17 (SD 2737). 2·1×1·87×0·26 ins. *Bhadaṁta-Buddharakshitasa* . . . . . ; " . . . of the venerable Buddharakshita ". Locus : Main Street (2). Level : +4 ft.

No. 18 (SD 2738). 4·2×3·68×0·31 ins. . . . . *tasa Sagharkshitasa ida karaka i* . . . ; " this is the drinking vessel of Saṁgharakshita . . . . . . " Locus : Main Street (2). Level : +2·5 ft.

No. 19 (SD 2856). 2·55×1·5×0·26 ins. *Pravrajitasa Muttakasa ima-* . . . . ; " this (drinking vessel) of the ascetic Muttaka (Muktaka) . . . " Locus : Bl. 8, rm. 5. Level : +3·3 ft.

No. 20 (SD 2740). 2·3×1·15×0·2 ins. . . . . *Pravrajitasa*. . . . ; " of the ascetic . . . . " Locus : Bl. 8, rm. 7. Level : +3·9 ft.

All these sherds are fragments of drinking bowls, the Brāhmī word for which *karaka*, appears in inscription No. 18.[2] From their characters Mr. Majumdar dates these inscriptions to the second or third century A. D. The ware is moderately thin, grey or reddish-grey in colour, and coated with a black slip which is highly polished in Nos. 11, 16, 19 and 20, and slightly so in Nos. 2, 17 and 18.

The very fine Brāhmī vessel (SD 2887) in Pl. LII, 1 (see also Pl. LXXI, 1) contained the concreted mass of coins photographed in Pl. LXXI, 12.[3] This well-made vessel is 6·3 ins. high and made of a fine pink paste so carefully polished as to look like stone, a resemblance enhanced by a quantity of limestone particles in the paste. It has no neck and there is a slight recessing around the mouth which is 1·6 ins. in diameter.[4] Owing to its flared base this jar stands firmly. Locus : Bl. 2, rm. 1. Level +15·7 ft.

Glazed Ware.

Curiously enough, the only glazed pottery at Mohenjo-daro comes from a very early level.[5] That it was not an intrusion is shown by sherds having been found in different parts of the DK Area and a number in our deepest clearance.

[1] These inscriptions have been filled in with white paint for photographic purposes.

[2] Mr. Majumdar refers me for the meaning of the word *karaka* to the *Pali-English* dictionary by Rhys Davids and Stede, p. 23.

[3] These numbered 1078 in all, and some of them are illustrated in Pl. LXXXII, 11–17.

[4] This recessing probably took a cover which, however, we did not find.

[5] I exclude certain pottery beads.

I have already described this ware in the first book on the site,[1] but since then we have found several more sherds, the best preserved of which are illustrated in Pl. LXX, 1–4. Like the fragments found in previous seasons, these sherds, all of a light grey ware, were covered with a dark purplish slip[2] which had been carefully burnished. A glaze was then applied to the surface, but before being fired a portion of both glaze and slip was removed with a comb so as to form straight or wavy lines as a decorative pattern. The result is not unlike the "reserved slip ware" illustrated in Pl. LXVII, 3, 4, save that the latter sherds are not glazed and are a different colour. Superficially, this glazed ware is so like mosaic glass that one feels that some craftsman experimenting in this direction perhaps produced a vessel composed entirely of ropy glaze which had not fused throughout and could, therefore, not be truly termed a glass. It would perhaps be unsafe to regard this glazed ware as imported, for nothing like it has yet been found either in Sumer or Elam. It is so distinctive of the lower levels of Mohenjo-daro though as I have said before it is rare even there, that we hardly dare to hope that complete vessels of it will eventually be unearthed and that we shall be enabled to examine this question afresh in the light of their shapes.

Theriomorphic Vessel.

No. 23 in Pl. LXVI, which is 5·35 ins. long, is apparently a theriomorphic vase in the form of a couchant ram. It is the first of its kind to be found at Mohenjo-daro. The modelling of the head is good, but the fore and hind-legs are very roughly fashioned. The body is hollow and there is a slightly rimmed aperture, 0·62 in. in diameter, in the middle of the back. In the eye on the side photographed an oval pellet once represented the pupil; the pellet is still present on the other side. The usual kind of clay was used to make this vase and it is covered with a cream slip.

Theriomorphic vessels are known among the relics of most ancient civilizations, especially in stone in the early periods; but representations of sheep are rare and I only know of two others. One is the model of a ewe from one of the Aegean Islands[3] and now in the Ashmolean Museum, Oxford. The other, an aragonite vase from Ur in the shape of a ram, is dated to about the seventh century B. C.[4]

Sir Arthur Evans has made the ingenious suggestion that some at least of these theriomorphic vessels were used as inkstands.[5] This is not impossible; the specimen from Mohenjo-daro could well have been used for this purpose; it would have held plenty of ink and there may have been a pad inside to prevent undue evaporation, as in many of the modern ink-pots of the East. True, there are no ink-stains to be seen in this vessel, but ancient ink had not the staining properties of modern ink and was readily soluble even when it had dried.[6] We should expect ink to have been used by the people of Mohenjo-daro; the material

[1] *Mohenjo-daro and the Indus Civilization*, pp. 578, 692-3.

[2] Probably manganese.

[3] Frankfort, *Studies in Early Pottery*, I. pl. IX, fig. 4.

[4] Glanville, "Egyptian Theriomorphic Vases in the British Museum," *Journ. Eg. Arch.*, vol. XII, p. 66, no. 5.

[5] *Palace of Minos*, vol. III, pp. 422–6.

[6] The ink used by the poorer school-boys in India for use on their wooden boards is lampblack mixed with a little gum and water; it is readily removable with a damp cloth.

on which they wrote their documents and letters, whether leather, bark or wood, was perishable and would probably not have taken the impress of a stylus.

Pottery Groups.

Pottery groups of more than three or four vessels were tantalizingly rare in the upper levels of the DK Area ; but we were more fortunate in those from the lower levels (Pls. LXIV ; LXV), and several large groups were found in the SD excavations (Pls. LII ; LIII). In the groups in Pls. LVII ; LIX, I have omitted all duplicates; the Roman numeral placed against each jar indicates the actual number of that particular type found in the group. For instance, of the first three storage jars in Pl. LIX (1, 4, 7), which each contained a number of smaller vessels, No. I held five examples of Nos. 2 and one of No. 3.

General Remarks.

It will be noticed in the plates both of this book and the earlier one that among the pottery of Mohenjo-daro straight and angular shapes are the exception, and graceful curves the rule. Moreover, very few pieces have the angular projection or carination at the junction of shoulder and body which is so common a feature of the wares of Musyan and Susa, and is also present in some of the pottery from Kish. The nearest approach we have to this angular or carinated ware is seen in Pls. LVI, 10 ; LVII, 18, 19, 25 ; LX, 53, 63. It will also be noted that the high straight necks sometimes seen among the pottery of Susa II, Musyan and Kish[1] were not favoured at Mohenjo-daro, the closest approach being Nos. 13 and 24 in Pl. LV, and No. 25 in Pl. LVII. In the use of scoring as a decoration the pottery of Mohenjo-daro has affinities with some of the ware from the " A " cemetery at Kish, but this form of ornament was far more extensively employed at the latter site.

In the frequent use of a brilliant red slip, a great deal of the pottery of Mohenjo-daro is comparable with the ware of Jemdet Nasr and also with some of the vessels from Musyan and Susa II,[2] though not in shape nor many of the devices painted upon the slip. It would be unwise, however, to regard this red slip as a proof even of trade connection between India and Sumer and Elam, for it is also found on much of the pottery of Egypt from Predynastic times down to the Middle Empire, and in various other ancient civilizations as remote from India as Greece, China, Anau, Anatolia, Syria and Cyprus. I do not myself think that this red ware originated from any one centre; it seems to me far more likely that it was independently invented in some at least of the countries in which it is found. Red ochre is, after all, a very common substance and was probably in use long before the potter's craft came into being. Moreover, the technique of applying a red slip to a pottery base is very simple ; it may have originated in an attempt to copy wares made of clay containing so high a proportion of iron as to burn a brilliant red. Such clays were, of course, not always obtainable, and if the

1 Curiously enough, the modern painted ware of Sindh recalls the Elamite ware in angularity and the height of the neck. It is far more primitive in appearance than the ware of Mohenjo-daro. For some of the shapes of this modern ware, see Mackay, *Journ. Roy. Anthrop. Inst.*, vol. LX, pls. I and II.

2 The red used at those sites was frequently plum-coloured, whereas the reds at Mohenjo-daro are more vermillion in hue.

desired colour did not exist in the fabric of the vessel itself it was an obvious step to apply it to its surface.[1]

Whether there is any connection between the use of red clays and red slips for pottery and the reputed magical properties of this colour is an open question. But it would have been appropriate for vessels intended to contain food and drink to be painted a colour that in some countries is still considered to be an affective charm against the evil eye; red, is, moreover, thought in some parts of the world to be disliked by evil spirits.[2]

It is somewhat curious that only two types of vessel have a handle; the drinking cups seen in Pls. LII, 14; LIV, 8; LVII. 14, 15; LXII, 14–20, 22, which always have a flat perforated lug, and the very rare type of vessel from the lower levels, seen in Pl. LXII, 21, 23, 24. Save for simple perforated lugs, handles are also rare among the early wares of Sumer and Elam.[3] Yet the absence of handles from the pottery does not necessarily imply a primitive state of civilization, for vessels with well formed and useful handles were found at Jemdet Nasr associated with vessels that had simple lugs and others with no handles at all.[4] The culture of Jemdet Nasr must be regarded as distinctly older than the Indus Valley civilization as we know it; yet at that very early period a proper handle was known and used, though it was not sufficiently appreciated to pass into use in adjacent areas also.

It will have been noticed that flat-based vessels were in more general use than those with a rounded or pointed base. Though many of these flat bases by reason of their narrowness do not afford much stability, most of them allow of the vessels standing quite comfortably on a hard level surface, such as a burnt brick floor; and in many of the poorest houses at Mohenjo-daro there were floors of this description. But that jar-stands were used we know, and it is certain that the larger storage jars with their very inadequate bases must have been supported in this way.

Type A: Offering Stands (Pls. LII, 29, 34; LIII, 54; LIV, 13; LV 1–11; LVII. 31; LVIII, 1; LX, 1–13; LXV, 35, 37; LXVI, 11, 47, 52).

Offering-stands are as frequently found in the lower as in the upper levels; yet we are unable to say that any particular shape is characteristic of any particular level. (a) The squat or dumpy shape[5] seems to have been most favoured, judging from their preponderance in number over the taller shapes which fall into two groups:—(b) those with long plain stems (Pls. LIII, 54; LX, 13; LXVI, 52), and (c) those with moulded stems (Pls. LII, 29; LV, 10; LXV, 35). We can now add a fourth group (d) which includes stands with a bowl-like upper portion (Pls. LII, 34; LV, 7; LX, 2). Unfortunately, we have as yet found no complete specimen of this last sub-type, but there is reason to think that in all

[1] One of the sherds of the prehistoric pottery from Honan, China, contained as much as 18·3 per cent. of iron oxide, and a second fragment 30 per cent. It is, however, uncertain whether this high proportion of iron was natural or due to some artificial admixture. Arne. *Palaeo-Sinica*, part II (1925), p. 9. Some of the ancient pottery from the Bahrein Islands contains a great deal of red ochre which seems to have been intentionally added to the clay; Mackay, *Bahrein and Hemamieh*, pp. 24, 25.

[2] Abbott definitely states that "of all colours in India, red and yellow have the most power and of them the power of red is the greater". Abbott, *Keys of Power*, p. 281.

[3] I purposely omit the water-jars of *Type A* found at Kish, as it is not absolutely certain that the apparent handles were used as such.

[4] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, pl. LXIV.

[5] See *Mohenjo-daro and the Indus Civilization*, p. 294.

of them the stem was horizontally fluted, as in Pl. LV, 7, 11. Moreover, the stands of this group are almost invariably made of a grey paste which was sometimes coated with an almost black slip. No. 2 in Pl. LX, however, is the usual light red ware, but it is coated inside and out with red paint and decorated on the outside with rough cross-hatching in black. The exceptional depth of the bowls combined with their comparatively small diameter suggests that the stands of this group were used as censers,[1] though no evidence of this, such as the blackening of the inside, is to be seen in any of the examples that we have found.

The very graceful stands (*c*) with a ball moulding at the top of the stem (Pls. LII, 29; LV, 10; LXV, 35) are found at all levels though much more frequently in the upper than in the lower ones; but we have not yet unearthed a complete specimen. They are invariably very well finished and always covered with a thick, smooth, red slip, carefully polished and frequently of a bright vermilion colour. The stands of sub-type (b) with a long plain stem are not quite so numerous and in workmanship they are inferior to the more ornamental type. No. 13 in Pl. LX (see also Pl. LXVI, 52) is the most complete offering-stand that we have found.

I have before remarked that these offering-stands, whether tall or short, were made in two pieces which as a rule were so carefully joined that the union between the pan and the stem can very rarely be detected. The base of the pan (Pl. LXVII, 14) was very carefully scored all over to make the stem adhere to it more readily; and a little luting with clay on the outside would entirely conceal the joint. As a matter of fact, offering-stands are very rarely found broken at the original joint; a proof that the potter was aware of the possible weakness at this point.

The number of miniature offering-stands found is particularly noticeable. No. 8 in Pl. LX is only 2·1 ins. high and was partly hand and partly wheel-made. Some of them are so roughly shaped as probably to be the handiwork of children, but others were obviously the work of the potter. Possibly, these small stands were expressly made for votive purposes; if so, they may have been used for minute offerings or to serve as lamps on special occasions.[2]

Owing to the great number of the offering-stands found in the more recent excavations, I propose to describe individually only those of special interest; slips, pastes and other particulars will be found in the tables at the end of this chapter.[3]

Plate LV.—No. 6 (see also Pl. LIV, 13) is the top of an offering-stand whose stem and lower part had unfortunately been broken off. The inside of the pan which is of unusual shape is fairly smooth, but the outside is rough. If it were not for the marks on the base left by the broken-off stem, this piece would have been included amongst the deeper pans.

[1] I am still of the opinion that some, at least of these stands were used as censers. We have corroborative evidence of this in an archaic Sumerian sign which represents a censer of hour-glass pattern with fire burning in it; Barton, *Origin and Development of Babylonian Writing*, p. 72, sign No. 291.

[2] For a portion of an exceptionally small and well made example of vitreous paste, see Pl. CVI, 10.

[3] A fuller description of this type of pottery will be found in *Mohenjo-daro and the Indus Civilization*, pp. 293–8.

No. 7 [Sub-type (d)] is made of a light grey paste, compact in texture. It has no slip, but the surface was carefully polished horizontally with a smooth tool. The bowl is wheel-made, but the fluted stem seems to have been moulded entirely by hand, though it may have been touched up on the wheel after the preliminary shaping.

No. 8 [Sub-type (a)] was an exceptionally well made stand of small size, but the base is missing. It is smoothly coated with a slip, light red in the interior of the pan and dark red elsewhere.

No. 11 [Sub-type (d)] is the stem of an offering stand and very similar to that of No. 7. It is light grey ware, smooth outside, but with no sign of polish. As in No. 7, the deep-fluted stem is well made and finished, though the flutings vary somewhat in width.

Plate LVII.—No. 31 [Sub-type (a)]. A squat stand, very roughly decorated inside the pan as well as outside, with wide bands of dark red paint applied to the natural surface of the pottery. Rather roughly made.

Plate LX.—No. 2 [Sub-type (d)]. Light red ware, coated inside and out with a red slip, with rough cross-hatching in black paint on the outside.

No. 4 [Sub-type (a)] (see also Pl. LXVI, 47) is a very unusual vessel with three flat lugs on the rim of the pan, in each of which a small hole is pierced to suspend it. It is the first of its kind to be found and is only 2·15 ins. high. In the centre of the pan, a blind hole, 0·16 in. in diameter and 0·44 in. deep, possibly took a pin to support a candle. In fact, this curious object may have been a hanging lamp. It is entirely hand-made, but very regular in shape and finish.

No. 7 [Sub-type (a)]. The pan and part of the pedestal of this stand were roughly washed with red paint over a cream slip. Somewhat poorly made.

No. 12 [Sub-type (a)] was washed over with light red and decorated as shown in the illustration, with black paint. It is very unusual to find an offering-stand decorated in this manner. Though the pan is missing, it was probably similarly ornamented.

Plate CXII.—No. 8 (DK, DG, 56). An offering-stand from a very low level, whose pan is not unlike that of No. 2 in Pl. LX but is otherwise new in shape. Its present height is 2·95 ins., and it is coated with a light red slip both inside and out. It was evidently made in two pieces, the upper part on the wheel and the broken lower part modelled by hand or else trimmed up after the two pieces had been fitted together. This stand may have been used as a censer; it is too small for any other purpose. Locus: Bl. 7, deep clearance. Level: – 39·4 ft.

Type B (Pls. LII, 9, 19, 20, 24; LIII, 15, 52; LV, 12–18; LIX, 2, 5, 11, 14, 19–21, 27, 28; LX, 14–17; LXIV, 12, 49; LXV, 6, 33).

This type of jar, by far the most numerous at Mohenjo-daro, varies in form from the compact shape seen in Pl. LX, 14, to the very elongated form, No. 17 in the same plate. This latter is more often found in the upper than in the lower levels, and though it occurs as low as – 17·1 ft. there is a possibility that it may have been left at this low level in one of the great holes made by delvers after bricks, for it looks to be a degradation from the more compact variety. No. 13 in Pl. LV is remarkable in that it is more carefully made than is usual with this

ware, and it is surprisingly thin. The jars of this type are frequently coated with a thin cream wash ; they all have deep spiral grooves round the middle, which would have served to give greater security, if they were, as I have before suggested attached to some kind of water-wheel. The base is in all cases entirely inadequate and no stands have been found that could have accommodated them.

Type C (Pls. LII, 25, 27, 28, 42 ; LIII, 11–14, 17, 20, 23–27, 38, 40–2, 44, 51 ; LV, 19–22 ; LIX, 23, 26, 29, 30 ; LX, 20, 22, 23 ; LXV, 44 ; CXLI, 56).

This exceedingly common type of vessel, in general covered with a cream slip and of comparatively small size, was possibly used as a drinking cup. No. 56 in Pl. CXLI, which is only 2·99 ins. high, is exceptionally well made, very thin for its size, and coated with a cream slip. Locus : Bl. 7, ho. VII, rm. 25. Level : – 11·2 ft.

Type D (Pls. LIII, 28, 33 ; LV, 23 ; LX, 24 ; LXIV, 14, 58 ; CXLI, 54).

Only six specimens of this distinctive type of vessel with its moulded base have been found during the more recent excavations. Made of ordinary clay, they are all coated with a red wash or slip which extends well down inside the neck, save No. 14 in Pl. LXIV which is made of a grey clay and is coated with a thick, black slip. No. 58 in the same plate is also unusual in that the underneath of the base also was coloured. No jar of this type has yet been found lower than 17·5 ft. below datum. These vessels are all thin for their size and very well made.

Type DA (Pls. LII, 43 ; LIII, 22 ; LVI, 33 ; LIX, 15 ; LXI, 40).

These five vessels only differ from those of Type D in that they stand on a plain, instead of a moulded base. . The first two and the fourth are coated with a red wash, are thin for their size, and carefully made. No. 43 in Pl. LII, however, is so badly damaged that it now shows no trace of a slip or wash, even if this formerly existed. No jar of this type has yet been found in the lower levels.

Very similar in shape to the other four vessels is No. 40 in Pl. LXI, which is hand-made of a fine pink paste and was formerly ornamented with a trellis pattern in black paint. Three small holes in its rim at equal distances apart show that it was made to be hung up.

Type E (Pls. LII, 17 ; LIII, 47 ; LV, 24, 25, 29, 30 ; LVII, 29 ; LX, 25–30 ; LXII, 40 ; LXIV, 24, 31, 53, 55, 62 ; LXV, 12, 13, 38, 40, 41, 45 ; LXVI, 19, 48).

This type of jar which has been termed " ledge-necked " on account of the definite shelf at the junction of neck and shoulder is as common in the lower as in the higher levels, and there is little variation in form, except that there is a tendency for the jar to become a little more elongated in the upper levels. These jars were almost invariably trimmed down with an edged instrument, sometimes from as high up as the neck but more generally the lower portion only. The " ledge " form of neck is also to be found among the storage jars (Pls. LVIII, 8 ; LXIII, 1, 2, 5, 7, 9). Sometimes jars of this type were ornamented with a scored spiral line round the widest part.

Type F (Pls. LII, 23; LV, 26–8; LX, 31, 31a, 31b, 32, 36; LXIV, 13; LXV, 47; LXVI, 20; CXLI, 60).

The pottery jars of this fairly large group are characterised by a projecting rib or beading at the junction of shoulder and neck, and modifications of this shape have also been found in copper and bronze (Pls. CXV, 16; CXVI, 5, 7, etc.). The neck and rim are almost invariably thickly coated with either a red or a dark chocolate coloured slip, the latter being the more usual on the larger jars. Sometimes the red slip is very highly burnished, as, for instance, on the jar, 3·3 ins. high, in Pl. LXVI, 20. The rounded base which is somewhat rare at Mohenjo-daro gives these vessels a distinctive touch, though in some few, *e.g.*, Pls. LII, 23; LX, 31a, the base is flat. This type of jar is found from the lowest levels to the highest.[1]

No. 27 in Pl. LV (see also Pl. CXLI, 60) is a small vessel, only 1·72 ins. high, which should perhaps be included amongst the "Miniature" jars. It is exceedingly well made and was possibly intended to hold a cosmetic. It has a cream slip below the beading and a red wash above it.

The base of No. 28 in the same plate had been carefully trimmed with a knife.

No. 31a in Pl. LX is also a miniature vessel, 1·4 ins. high which differs from the general type in having a small projecting base that suggests that it was intended to fit into something perhaps a hole in a toilet case. It is very carefully made, and the neck and rim are coated with a red slip.

Type G (Pls. LII, 3, 22; LIII, 4, 18, 32; LV, 31–41; LVII, 28, 30; LIX, 3; LX, 33–35, 37–39; LXII, 34–36; LXIV, 5–8; 17, 18, 22, 26, 32, 40, 43, 44, 52, 54, 59, 61, 64, 65; LXV, 4, 7, 8, 16, 23, 24a, 28–34, 36; LXVI, 42).

In this group are included a number of jars which vary too little from each other to be dealt with separately. Though they differ very considerably in size, they all have small flat bases, usually scored by the cord that was used to separate them from the wheel. They generally have a thin cream slip, but sometimes this was omitted and the surface of the jar left bare.

No. 34 in Pl. LV is a miniature vessel of light grey pottery, very compact and unctuous in look and feel; it has no slip and is well made with a slightly polished surface. No. 42 in Pl. LXVI is 3·75 ins. high.

These vessels are very common in both the upper and lower levels.

Type H (Pls. LII, 35, 36, 41; LIII, 39, 43, 45; LVI, 1, 2; LIX, 8–10, 22; LX, 18, 19, 21; LXV, 11).

The jars of this group very closely resemble *Type C*, but are of smaller size. Some of them, indeed, are so small that they could not conveniently have been used to drink from, and I am inclined to think that they were stocked by shopkeepers to sell as containers of ghee, oils, etc. They are found in large numbers at all levels, are always very coarsely made, and were evidently a staple product of the potter.

Type I (Pls. LVI, 3; LXV, 25).

There is some considerable variation in these small-sized tall, narrow vases, but one (Pl. LVI, 3) exactly resembles the two illustrated in the first book on the site. This vase which is thickly coated with red slip has a flat beaded base. The flared rim was broken anciently and rubbed down smooth.

[1] I have seen an alabaster vessel in the Baghdad Museum, labelled as coming from Khafaje near the Diala River, that corresponds very closely in shape with this early Indian type of jar.

No. 25 in Pl. LXV, 4·16 ins. high, has a polished red slip and three minute holes in the rim only sufficiently large to take a fine thread to suspend the jar. Its foot is a little longer than in the other examples illustrated.

Type J (Pls. LIV, 1, 3, 10; LVI, 4–9; LX, 41, 51, 52; LXI, 31; LXIV, 3, 34; LXVI, 9).

This little group of vases distinguished by a very narrow mouth comprises otherwise a considerable variety of shapes. In some the mouth aperture is so small that it is thought that they were expressly made to hold some precious cosmetic. All are comparatively small in size, and the very inadequate bases of some of them suggest that they were kept in stands or in a case of some kind. They are more numerous in the upper than in the lower levels. As some of the jars of this type are of unusual interest, they are separately described below.

Plate LVI.—No. 4 (see also Pl. LIV, 1) is ornamented with a design painted in polychrome which is described in the section on that ware; but its very narrow mouth warrants its inclusion here also. It is made of a pink paste with a thick white slip, upon which a petal design was painted in black and red, and perhaps green also, that has disappeared. The neck and rim are black. Though this vase is 5·29 ins. high, its mouth is only 0·35 in. in diameter. Possibly it was used to hold a fine oil or powder of some kind, which has, however, left neither residue nor stain behind. This is the first vase of this shape to be found at Mohenjo-daro, a fact which coupled with its very careful finish suggests that it was made for a very special purpose.

No. 5. In shape this thin and carefully made globular jar is very similar to three vessels illustrated in the first book on the site.[1] Its material cannot be ascertained as the jar is unbroken; but it has a dark red slip, on which polish marks are seen here and there. Even the underneath of the base is covered with the slip, a feature which is somewhat rare. The mouth is only 0·59 in. in diameter and the whole vessel 2·9 ins. high, which barely lifts it out of the miniature class.

No. 6 is another well made, globular jar, smoothly coated with a now unpolished, dark red slip. The diameter of its mouth is only 0·22 in. and its base also is very narrow.

No. 7 (see also Pl. LIV, 10), which has a chocolate-coloured slip decorated with dark red bands, is a shape that is quite new to us. Its narrow mouth is only 0·4 in. in diameter. The substantial base shows signs of having been trimmed with a knife, and opposite one another in the neck just below the rim are two holes each 0·08 in. in diameter, which were probably used to tie on a lid, as they would hardly have served for suspending the jar. The broad flat base of this ugly vessel and its substantial make suggest that its contents were considered of value.

No. 8. A small globular vessel, only 2·32 ins. high, with a thick cream slip; overburnt and slightly warped in consequence. Mouth 0·23 in. in diameter.

No. 9 (see also Pl. LIV, 3). No slip. The finish is good and the vessel fairly thin for its size, with a mouth only 0·92 in. in diameter. There is string scoring on the small flat base, and a shallow spiral groove round the middle of the vessel serves as a decoration. This also is a new shape, and, indeed, the only one of its kind to be found up to the present.

[1] *Mohenjo-daro and the Indus Civilization*, pl. LXXXI, 14, 15.

Plate LX.—No. 41 has an orifice 0·15 in. in diameter and is only 2·2 ins. high. It is hand-made and has no slip.

No. 51 is a very unusual vessel. It is 4·27 ins. high and coated all over with a red wash, upon which broad vertical lines of black were painted. The inside diameter of its spout-like mouth which projects considerably above the top of the jar is only 0·21 in. This vase stands quite well upon its concave base, but that it was also sometimes suspended is evident from the two large holes, 0·18 in. in diameter that pierce the rim. It probably held an eye powder, such as antimony, which could be poured in small quantities as required from its curiously shaped mouth.

No. 34 in Pl. LXIV, which was found at the level of – 12·4 ft., resembles No. 6 in Pl. LVI very closely; it also has a dark red slip which entirely covers it. Its mouth is 0·31 in. in diameter, and it stands 3·2 ins. high. These globular vases appear to be a product of the Late Period only.

No. 9 in Pl. LXVI is 3 ins. high with a mouth 0·6 in. in diameter. Its shoulder was roughly washed with red over a pink slip.

Type JA (Pl. LX, 42, 53).

Only two further specimens of this type have been found in recent seasons,[1] and like most of the few found prior to 1927 they come from the lower levels.

No. 42 is only 2·58 ins. high with a mouth 0·38 in. in diameter. It formerly had a red wash or slip, and the upper part is decorated with plain black lines.

No. 53 is 2·85 ins. high and its mouth is 0·2 in. in diameter. It has a red wash, and there are indications that it was formerly ornamented with thin black lines.

Both these vases have the mouth recessed, possibly to take a closely fitting, bevelled cover; or, it may be, to facilitate filling, especially if they served to hold a fine powder.

Type K.

No further examples have been found in recent years of this bulbous type of jar with long, thin, projecting base and not scored or decorated in any way.[1]

Type KA (Pls. LII, 33; LIII, 1, 34, 47).

In this new group are included four vessels from the SD Area with thin attenuated bases and narrower and taller than *Type K.* They have a heavy cream slip, the base is roughly finished, and the interior heavily grooved.

Type L (Pls. LVI, 10–13; LX, 43–49, 54, 57, 58; LXII, 43; LXIV, 4, 11; LXV, 5, 21; LXVI, 17).

The vessels of this squat type, with the diameter considerably greater than the height, all have a comparatively narrow mouth. The upper portion is almost invariably well made and they frequently have a red wash or slip. The base varies considerably in width, even in jars which are otherwise identical in form. Those with a very small, projecting base form a sub-type LA (see below). Quite a number of these jars of *Type L* might be included in the category " Miniature " vessels; No. 43 in Pl. LX, for instance, is only 1 in. in height. The smaller vessels of this type are often decorated above the middle of the body with thin, horizontal, black lines.

[1] *Mohenjo-daro and the Indus Civilization*, pl. LXXXI.

The very round jar, No. 43 in Pl. LXII, with its small, flat, well-finished base is unique. It is made of the usual clay with a cream slip.

No. 21 in Pl. LXV (see also Pl. LXVI, 17) is very thin for its size. Its smooth, but unpolished surface was first coated with a red slip, then with one of a purplish-brown shade.

Type LA (Pls. LII, 8; LVII, 26, 33, 37; LX, 50, 55, 56, 59–63; LXIV 9, CXLI, 52).

These vessels all show the leading characteristic of *Type L* in that they are wider than they are high; but they also have a pronounced and more or less elongated base, upon which some only just stand, whereas others are so unstable as to need a special stand. The jars of this sub-type are always of small or medium size and they were probably used to contain cosmetics. They are found at all levels.

Type M (Pls. LVI, 14, 15, 17; LIX, 6; LX, 64, 65; LXI, 74; LXIV, 20, 63; LXV, 9, 32; LXVI, 24, 29; CXLI, 59).

In this type are included various bowl-like receptacles set on a narrow base which is sometimes solid, sometimes hollow. These vessels are somewhat rare, especially the larger sizes, *e.g.*, Pl. LX, 64, 65. The smaller ones are often hand-made and roughly and unevenly finished. Sometimes the foot only is made by hand (Pl. LXV, 9).

Plate LVI.—No. 14 is hand-made of very thick coarse ware. Its base is flat instead of being concave as is usual with this type.

No. 15 (see also Pl. CXLI, 59) is a roughly finished, hand-made vessel of light-red paste with no slip. Its base is slightly concave. A cup not unlike this in shape, unearthed at Kish, is now dated to c. 2,600 B.C.[1]

No. 17 is also somewhat roughly finished. Its upper portion is coated with a dark-red wash which was carried well down inside the mouth. The lower portion, including the short foot and underneath the base, has a thick cream slip.

No. 6 in Pl. LIX is a hand-made vessel with no slip. The foot was formed by pressing down the lower part of the body of the cup before baking, and the base is slightly concave. This cup was found inside the large storage jar with which it is illustrated.

Plate LX.—No. 64 is a very well-finished bowl, both inside and out, which once had a red wash or slip, most of which has disappeared.

No. 65 (see also Pl. LXVI, 24) was somewhat over-fired and is, in consequence, a little out of shape. It had a red slip which still shows traces of polish, and was further ornamented with lines of black paint. It comes from 17·9 ft. below datum, the lowest level at which we have found the larger and more important vessels of this type, though the smaller, hand-made variety (Pl. LXV, 9) is known as low as − 21 ft.

No. 74 in Pl. LXI is an unusually fine specimen of this type, very well made and with the bowl very widely open. The inside is plain, but the outside even to the hollow of the base is coated with a dark red slip and is decorated with black lines.

[1] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, pl. LII, fig. 6.

No. 32 in Pl. LXV (see also Pl. LXVI, 29). Pink slip; hand-made throughout.

Type MA (*Pls. LII, 10; LIV, 7; LVI, 16, 18, 32, 34; LVII, 12, 13; LXI, 1–9, 11, 12, 15, 16, 32–35, 37a, 47; LXII, 39, 44; LXIV, 10. 21; LXV, 22; LXVI, 30, 32, 33, 36, 37, 43–45, 49*).

The upper portions of the vases of this sub-type are quite unlike those just described, and they also vary considerably among themselves. All these vessels have a distinct foot, sometimes solid but often with a spreading base. Eight, all of which come from the lower levels, have holes in the rim for suspension (Pls. LXI, 5, 7–9; LXII, 39; LXVI, 36, 37, 44, 45, 49). The more interesting of these vases, most of which were found in the lower strata, are described below; quite a number are hand-made.

Plate LVI.—No. 16, 2 ins. high. Dark red slip. Ornamented with irregular black lines, even on the edge of the rim and a little way down inside.

No. 18. 2·12 ins. high. Very carefully made. Smoothly coated with a polished red slip, and decorated even on the edge of rim with thin black lines. As well finished inside as out, though the inside is not coloured.

No. 32. No slip. Upper part not unlike *Type G*; but its peculiar and very solid base and its general shape include it in this group.

Unfortunately, the upper part is missing from both Nos. 12 and 13 in Pl. LVII, but an unbroken jar illustrated in the first book on the site[1] suggests that the mouth was flared; in both the high, carefully modelled flat base has string-grooves beneath.[2] Each was carefully decorated with narrow black lines on a red slip. A striking feature of these two vases, which is shared by Nos. 39 and 44 in Pl. LXII, is their slender and graceful form. The jars of this sub-type are mostly small, No. 44 in Pl. LXII, which is now 6·5 ins. high, being an exception; they probably served to hold a cosmetic.

Plate LXI.—No. 3 is an exceptionally well-made vase, whose upper part has no slip, though the lower part, foot and base are covered by a thick, white wash.

No. 8 (see also Pl. LXVI, 33) is a roughly hand-made vessel with a red wash. Three minute holes near the rim took the cords by which it was suspended.

No. 32 has a good red slip which was formerly ornamented with black lines. The original foot was broken and rubbed down to make the present flat base.

No. 47 (see also Pl. LXVI, 43) is hand-made in a particularly compact, pinkish paste. It was pricked all over with the corner of an edged instrument before being baked, in horizontal rows on the upper part of the vase and vertical rows below. A small vertical hole inside this vase communicated with the hollow in the base.

Plate LXII.—No. 39, now only 2·9 ins. high owing to the loss of its foot, was somewhat roughly made and painted. Three small holes for suspension pierce the rim at equal distances apart. Black and red bands and vertical strokes on red and cream slips decorate this little vase.

[1] *Mohenjo-daro and the Indus Civilization*, pl. LXXXIII, fig. 11, p. 310.

[2] Unfortunately, the bases of Nos. 39 and 44, pl. LXII, are missing.

No. 44, which has also lost its base, now stands 6·5 ins. high. It has a red slip, upon which simple designs were painted in black. Both these jars came from a low level.

Plate LXVI.—No. 36 is hand-made and stands 4·2 ins. high.

No. 37 a hand-made vase with no slip or ornament, has unfortunately lost its base and now stands 3·68 ins. high. Three holes on the edge of its flared rim, each 0·06 in. in diameter, served to suspend it.

No. 44 is a very attenuated vase, 2·5 ins. high, entirely hand-made and coated with a red slip. Two very minute holes close to the top of its rim took the strings for suspension. The interior of this vase is so small that it could hardly have held anything.

No. 45. 3·75 ins. high. Formerly coated with a red slip. Upper portion wheel-made, the base made by hand. Three suspension holes pierce the rim.

No. 49 is 4·35 ins. high. It has a polished, dark red slip, upon which a pattern of white lines is roughly painted. That this jar was sometimes hung up is evident from the three holes at equal distances round the lower part of the rim.

Type N (Pls. LIV, 18; LVI, 19; LVIII, 10; LXI, 10, 37; LXIII, 1, 7; LXIV, 57; LXV, 24).

In the first book on the site, this type letter was allotted to a single vessel[1] whose lower portion was sharply cut away and incurved—apparently to make the jar fit into a stand—with the result that a definite angle was formed between it and the upper part of the body. A few similar jars have recently come to light with the lower part the same peculiar shape though their upper parts are quite different.

No. 19 in Pl. LVI is thin for its size, lightly coated with a cream slip, and apart from the peculiarity of its base quite a usual type. The lower portion had been carefully cut away with some sharp instrument with the probable intention of making it fit into a stand.

No. 10 in Pl. LXI is a very small vessel, only 1·13 ins. high, whose neck and a small portion of the shoulder are coated with a red slip. It was evidently intended that the somewhat roughly finished lower portion should be concealed from view in a stand.

The same kind of incurved base is seen among the storage jars (Pls. LVIII, 10; LXIII, 1, 7).[2] It is particularly accentuated in No. 24 in Pl. LXV, which is a very unusual shape. The lower portion of this vessel looks as if it had been built up of strips of clay.

The abruptly incurved lower portion of another storage jar (DK 12307) (Pl. LIV, 18) also shows signs of having been trimmed. Locus: Bl. 6A, rm. 37 Level: − 8·2 ft.

[1] *Mohenjo-daro and the Indus Civilization*, pl. LXXXI, fig. 32.

[2] Possibly the bases of the larger storage jars were trimmed down to fit them into the circular slings in which they were perhaps carried. Large jars are shown being transported in this manner by two men in Sumer about 5,000 years ago. The smaller jars were probably slung at the ends of a pole, as is seen amongst the signs on the seals (Pls. LXXXIV, 76; LXXV, 124; etc.). The Indian carries both pottery and metal jars in this way to-day. Frankfort, *Illust. Lon. News*, Oct. 8th, 1932, p. 529, fig. 14.

Type O.

In the first book on Mohenjo-daro,[1] a number of small painted jars were grouped together under this head by reason of a decoration of simple bands of black or purplish-black paint, though the jars themselves varied very considerably in shape. Jars of this kind are now distributed according to their shapes amongst other types, and many of them have been included in the "Miniature" class.

Type P (Pls. LII, 18 ; LXI, 17 ; LXVI, 41).

Jars of this type though very rare are found in both the upper and lower levels. They have a peculiar, thick, heavy foot and are always very roughly made and very thick for their size. They were probably water-jars.

No. 17 in Pl. LXI (see also Pl. LXVI, 41), which has a very rough and heavily grooved base, is covered with a cream slip. Both outside and inside this jar was scored by the fingers while on the wheel ; but on the outside this scoring was partially removed while the clay was still damp.

Type PA (Pl. LII, 38).

Type PA is similar to *Type P*, save that the base gradually fines down to a point. The jar illustrated has a cream slip, and the spiral finger-grooving both outside and in is very pronounced.

Type Q.

No specimens of this type[2] have been found during the more recent work.

Type R (Pls. LII, 2; LIII, 7; LVI, 22–27; LXI, 14, 18; LXIV, 23, 33; LXV, 19, 20; LXVI, 53).

Only four of the specimens illustrated in the present work vary sufficiently from the examples given in the first book on the site[3] to merit special description. In general, the vases of this type are very graceful though thickly made and sometimes coarsely finished, and some are even painted in polychrome. In fact, of the sparse amount of polychrome ware that has been found, including sherds, nearly all the jars were of this particular type.

Plate LVI.—No. 23. 2·8 ins. high. The dark red wash and the scored line at the junction of neck and shoulder make this jar somewhat out of the ordinary.

No. 25. Very well made and smoothly coated with a red slip. Has a deeply scored line as a decoration.

No. 27. A part only of a jar of this type. Decorated with uncommon shield-like motifs painted in black and red on a thick white slip (Pl. LXIX, 2). The centre of each device is red with a white border round it edged with black. A pattern of intersecting circles is a more usual decoration for this type of jar.[4]

No. 23 in Pl. LXIV is a beautifully made vessel, as smooth inside as outside, save towards the base.

No. 19 in Pl. LXV (see also Pl. LXVI, 53) has a thin, pinkish slip. It is very thin and well-made, and bears evidence both inside and out of being accidentally burned on some occasion.

[1] *Mohenjo-daro and the Indus Civilization*, pl. LXXXI.

[2] *Ibid*, pl. LXXXI, figs. 46–9.

[3] *Op. cit.*, pl. LXXXI, figs. 50-2.

[4] *Op. cit.*, pl. LXXXVII, 2.

Type S (Pls. LII, 30, 31; LVI, 28, 30; LIX, 12, 18; LXI, 19, 20; LXIV, 46, 48; LXV, 42).

This is one of the types most commonly found at Mohenjo-daro. These graceful jars seem to have been used as water-vessels and the flared mouth is certainly well suited for pouring. The most usual form is that in Pl. LVI, 28, but these vessels vary considerably in height and slenderness. Jars of this type were never painted; they were usually coated with a cream slip and are generally thick for their size—a very necessary feature in a vessel intended to contain a liquid.[1]

The surface of No. 16 in Pl. LIX was carefully smoothed by means of a flat tool while it was still on the wheel, a very unusual procedure with this or any other type of jar.

The vessels illustrated in Pls. LIX, 18; LXI, 19; LXIV, 46 have a slight beading round the base—also a somewhat unusual feature in this type of vessel.

Type SA (Pls. LVI, 29; LXI, 23–8; LXIV, 47, 51; LXV, 18; LXVI, 51).

These vessels are grouped together as a sub-type as they are considerably shorter and more bulbous in shape than *Type S*, which they otherwise resemble in make and finish. The vase was in some cases trimmed with a tool, as is seen in Pl. LXVI, 51, which stands 6·15 ins. high.

Type SB (Pls. LIX, 13, 16; LXI, 21, 22; LXIV, 45; LXV, 51).

This sub-type lacks the graceful curve inwards towards the base, and the jar tends to assume a more cylindrical form with a wider and firmer stance. These vessels can, however, hardly be regarded as degraded forms of *Type S*, for they occur as low as 14·9 ft. below datum. They were possibly expressly made this shape to stand securely on brick floors.

Group T (Some miscellaneous shapes) (Pls. LII, 37; LIII, 5; LIV, 12, 23; LVI, 31, 35; LXI, 30, 36, 38, 41; LXVI, 18, 23, 25, 38, 40, 46).

The vessels in this group are those that we have not as yet been able to assign to any particular type, which must await the finding of duplicates. They, of course, differ considerably in shape, and in form and finish are mostly quite unusual.

No. 23 (DK 8982) in Pl. LIV is 6·45 ins. high and has a wide mouth, 5·9 ins. in diameter. At the base this curious and unique jar is no less than 0·69 in. thick and it gradually fines down to a thickness of 0·45 in. towards the top of the shoulder. It seems to be hand-made throughout, and is decorated round the neck with a double row of impressed vertical strokes. The inside is perfectly smooth, but the outside which was purposely left very rough was coated with a mixture of sand and clay. It is a general practice in Upper Sindh to-day to apply a thick irregular coating of sand and clay to the bottom of water-jars of medium size, in order, I am told, to facilitate the cooling of their contents.[2] I do not think, however, that this particular vessel was made to contain water. Its great thickness which would certainly induce the slow cooling of its contents—a very necessary factor in the manufacture of glazes—suggests that it was used as a kind of muffle in a kiln, perhaps for the firing of faience. Locus: Bl. 11, ho. III, rm. 27. Level: — 11·9 ft.

[1] *Cf.* an Egyptian Predynastic shape; Petrie, *Prehistoric Egypt*, pl. XI, fig. 15.

[2] Mackay, "Painted Pottery in Modern Sind." *Journ. Roy. Anthrop. Inst.*, vol. LX, p. 131.

Plate LVI.—No. 31 is not unlike some of the storage jars in shape, though it is only 8·9 ins. high. It is well made and washed over with a cream slip. Part of the semi-polished base is covered with a light red wash, though why the base of a jar whose shape necessitated its being placed in a stand or set in the ground should have been coloured in this way, it is difficult to understand, unless it were to prevent undue percolation at the base.

No. 35 is a pottery candlestick, a photograph of which appears in Pl. LIV, 12. It is fully described in Chap. XII.

Plate LXI.—No. 30, which is washed all over with red and decorated with plain black lines, is a quite peculiar shape and unique.

No. 36 (see also Pl. LXVI, 25) is a hand-made vessel, 3·2 ins. high. In both shape and finish it also is unique. The decoration of horizontal rings incised by a sharp point gives a curious impression of fluting.

No. 38 is a well-finished, hand-made vase, whose surface, which has no slip, appears to have been rubbed down with a smooth instrument of some kind.

No. 41, which is only 3·1 ins. high, is unusual in shape and in the peculiar treatment of its base. The ware which is the usual paste covered with a thick cream slip is very thick for the size of the vessel. It shows no signs of burning, however, beyond the usual firing, and can, therefore, hardly be a crucible. The rounded base was deeply and regularly scored with a point in spiral fashion while on the wheel, for what purpose it is difficult to say. Level: – 19·8 ft.

No. 23 in *Pl. LXVI*, which is perhaps an ink-pot, has been discussed earlier in this chapter (p. 188). No. 40 stands 3·72 ins. high.

Type U (Pls. LIII, 16, 29, 30, 35; LVI, 37–40, 43, 45; LXI, 51–58, 61, 63, 66, 68, 70; LXIV, 2, 15, 28, 30, 35; LXV, 2, 30, 39).

Several entirely new shapes have now to be added to this group of shallow dishes, and also slight variations from the shapes published in the first book on Mohenjo-daro.[1]

Plate LVI.—No. 39 is somewhat unusual in that it has a projecting rim. Made of a drab-coloured clay, it was washed over with red inside and outside with a thin cream slip which here and there shows the colour of the pottery beneath.

No. 40 has a rounded base which is extremely rare; it was perhaps made to be placed in the pan of an offering-stand. Its grey, rather porous paste contains a great deal of lime, which is a very unusual ingredient of grey ware.

No. 58 in Pl. LXI has a broad band scored round it as a decoration, a very uncommon feature in a dish of this kind. There is also a pictographic character (?) incised on its flat rim. Its interior was once coated with a red slip and is very smooth, whereas the outer face is somewhat rough though the dish is well shaped.

Type UA (Pls. LVI, 41, 52; LXI, 39, 48, 49, 71, 72, 76; LXIV, 29, 36; LXV, 31; LXVI, 14).

In this type are included several small vessels which must have served as cups. They are all convenient sizes and shapes for that purpose, though they vary considerably in form. Those with vertical sides are rare; of three found in the lower levels (Pls. LXI, 72; LXIV, 29, 36), the two last were 20·9 ft. below datum.

[1] *Mohenjo-daro and the Indus Civilization*, pl. LXXXII.

No. 41 in *Pl. LVI.* A hand-made vessel of rather rough workmanship; no slip. The junction between the wall of this vessel and its flat base is clearly seen on the inside, but was carefully smoothed off outside. No. 52 with its practically straight sides is despite its very simple form quite an uncommon shape at Mohenjo-daro, though in Sumer it was perhaps the most usual shape about 2,700 B. C., whether made in stone or pottery. Straight-sided shapes are rarely found at Mohenjo-daro, where curved sides are the rule.

Plate LXI.—No. 39 is hand-made, No. 48 is grey ware that was formerly once coated with a black slip. No. 49, of soft white alabaster, has been included by mistake with the pottery; this vessel seems once to have been fixed on a support. No. 72 (see also Pl. LXVI, 14) is heavily fired grey ware. It appears, indeed, to have been fired more than once and may have been used as a muffle in a kiln.

In two cups (Pls. LXI, 76; LXV, 31), the base was pared down with a sharp instrument; and No. 76 was coated with a white slip.

Type V (Pls. LIII, 6; LVI, 44, 46, 47, 49–51, 53; LXI, 59, 60, 64, 65, 67, 73, 79, 80; LXIV, 37, 60; LXV, 3; LXVI, 13).

In this group are included the deeper dishes, some of which might almost be described as bowls. No. 46 in Pl. LVI, which is typical, is roughly made with an undulating outer surface and a cream slip on the inside only. Like the shallower dishes, these vessels were principally used for food. Hence there was really no need for the exteriors to be well finished and this was only done in the case of painted dishes or those coated with a red slip.

Plate LVI.—No. 44. Light grey clay with a fine, polished, black slip. It has been restored and we are uncertain what kind of base it had. It appears to have been an unusual and decidedly handsome dish.

No. 49 is the somewhat rare, carinated form, and the incurve below the rim adds grace to a vessel which is well made though unusually thick for its size. A very similar bowl appears in the previous book on Mohenjo-daro, but in its case the incurving is more angular.[1] Another similar bowl (Pl. LXI, 64) was found at the level − 32·1 ft. Thus in spite of its rarity this shape had a very wide range of time, as No. 49 came from the level 7·3 ft. below datum.

No. 53 is a well made bowl thickly coated with a red slip both inside and out, and decorated with a series of carefully painted black lines.

No. 73 in Pl. LXI (see also Pl. LXVI, 13) has the carinated shape of several of this type. There was once a rough red wash on the shoulder and inside, and the base is very roughly finished.

No. 37 in Pl. LXIV with its deep concave sides is unique. It is very well made though thick for its size, and the curious upcurved base suggests that it was fitted into a stand.

Type W (Pls. LII, 15, 16; LIII, 31; LVI, 54, 55; LXI, 69, 75, 77, 78; LXIV, 1; LXV, 1).

These very wide and comparatively shallow, broad-based dishes might well be termed pans or platters, as they were probably used for mixing food or making bread. They are, however, not very common.

[1] *Mohenjo-daro and the Indus Civilization*, pl. LXXXII, fig. 26.

Plate LVI.—No. 54 is dark grey ware with a smooth black slip, and is very well made with a ring base and incurved rim. When perfect it must have been a very handsome dish. No. 55 is drab-coloured with a pinkish slip. Though the inside of the pan is smooth, the outside, and specially the slightly concave base, is very roughly finished.[1]

No. 78 in Pl. LXI, which is well made and coated with a pink slip, is an unusual shape with its incurved brim. It was perhaps used for mixing and kneading flour; its shape would tend to prevent any from being wasted.

Type X (*Pls. LVI, 48; LVII, 1–11; LXII, 1–13; LXIV, 39; LXV, 27; LXXI, 3*).

Jar-covers are found in large numbers, and three distinct shapes are known.[2] The most usual one, which merely rested on the top of the jar, is seen in Pls. LVII, 1; LXII, 4, 8–11; LXIV, 39; CVII, 23. The next most popular shape was a bowl-like form with a projection in the centre for lifting it (Pls. LVI, 48; LVII, 3–7; LXII, 1–3; LXXI, 3).[3] The third shape is seen in Pls. LVII, 2, 8–11; LXII, 5, 7, 12, 13; LXV, 27. The covers of this shape are invariably well made, frequently coated with a red slip, and sometimes decorated with black bands. They were evidently made accurately to fit certain types of jars, but what types can only be conjectured since no jar has yet been found with this shaped cover in position. Jar-lids of this shape are also made in copper and stone (Pls. CXXIV, 28; CXXV, 25), and very similar covers made of pottery have been found in Southern Greece and dated to the Early Helladic Period.[4]

As none of the jar-covers discovered since 1927 differ materially from those already described in the first book on the site, it is unnecessary to deal with any of them more fully, save two unusual examples.

No. 23 (DK 8763) in Pl. CVII. Light pink pottery. 1·2 ins. in diameter and 0·61 in. high. The lower edge of this cover which rested on the jar had been carefully rubbed flat; and inserted in a small hole in the top is a piece of broken copper wire, now 0·23 in. long, which seems originally to have been a ring by which the cover was lifted. Locus: Bl. 8, ho. II, rm. 23. Level: – 10 ft.

What may be a jar-cover (SD 2727) (Pl. LXXI, 3)—though it is possible that it was used to close one of the flues of a kiln as it was overfired or burned later and is badly blackened—is slightly dish-shaped with a projecting handle. It is 3·35 ins. in diameter by 1·6 ins. high, including the handle. Locus: SD Area, Main Street (1). Level: + 2·7 ft.

Type Y (*Pl. LIII, 21*).

This type of jar is very rare and since 1927 we have only found one more specimen. It is characterized by its squatness, broad flat base, and the heavy horizontal fluted bands round the middle. The newly found specimen has a pink slip and is decorated with five horizontal grooves. As it is made of the

[1] The roughness of the base would have prevented the pan from sliding about when in use.

[2] An ivory jar-stopper of yet another type (Pl. CIX, 19) is described in Chap. XII.

[3] I have already pointed out that covers of this shape have been found at Jemdet Nasr near Kish. *Anthropology Memoirs*, Field Museum, Chicago, vol. I, pl. LXVII, figs. 25–7. They have also been found in Balūchistān, where one would expect them; Noetling, *Zeitschrift für Ethnologie*, 1898. Examples dated to the Philistine Period are known, too, from Gerar in Palestine. The geographical range of this type of cover even includes the South of Italy and was evidently very wide.

[4] *Camb. Anc. Hist.*, vol. 1 (plates), pl. 101 (*c*).

same clay as the other pottery vessels of Mohenjo-daro, it is not likely to be an importation, though somewhat similar vessels with the same fluted ornamentation have been unearthed at Kish.[1] Whole jars of this type have up to the present only been found in the later levels; indeed, the latest specimen was only 0·2 ft. below datum. A heavily fluted sherd (DK. DG, 73) (Pl. CXII, 9), 4·7 ins. long by 0·29 in. thick and coated with a thick cream slip, was found in the deep clearance in Block 7 at a depth of 41 ft. below datum; but whether it once formed part of a vessel of *Type Y* it is impossible to say.

Type Z (*Pls. LIII, 3 ; LVII, 17 ; LIX, 17 ; CXLI, 53*).

Only three vessels of this type have been found since 1927, and only two prior to that date.[2] They are characterised by their almost cylindrical shape, their very rough make, and heavy sides and base. Inside, these jars are deeply fluted by the fingers of the potter, which suggests that their intended contents were of such a nature that it was not difficult to keep the vessels clean. All three specimens have a cream slip, and they all come from a late occupation.

Type AA (*Pls. LII, 11 ; LVI, 56 ; LXV, 10*).

This rare type of jar is not unlike *Type B* in general shape and the scoring round the middle, but it is distinguished from it by the sometimes pointed, sometimes flat base, and also by the much more careful make. It is convenient to separate the jars of this type into two sub-types :—*Type AA* (a) with a flat base, and *Type AA* (b) with a pointed one. Of the former, we have found only one example since 1927 (Pl. LII, 11). Of the latter, two examples are illustrated in this book (Pls. LVI, 56 ; LXV, 10), and a third in the earlier book on the site.[3] No. 10 in Pl. LXV was originally washed over with red ochre.

Type AC (*Pls. LII, 14; LIV, 8; LVII, 14, 15; LXII, 14–24; LXIV, 50; LXVI, 6, 7, 22, 28, 35*).

This group includes all those vessels that have a handle. Of these the most common shape is a simple cup with a thin perforated ear-like handle by which it was lifted. Sometimes this handle resembles a bird's head and the hole by which the cup was hung up suggests an eye. These cups generally have a cream slip and are usually hand-made, though some were made on a wheel. The lug, of course, was added later. Handled cups of this shape are found at every level from – 25 ft. upwards. As a general rule, however, the later examples are severely plain; it is only in the lower levels that the rim is grooved (Pls. LXII, 15; LXVI, 6) or carinated (Pl. LXII, 17).

The lower portion of No. 15 in Pl. LVII, which is hand-made, was roughly trimmed from about an inch below the rim downwards with a comb-like instrument which may have been a notched piece of flint. The small, flat, projecting base seems to have been shaped by means of this instrument.

Another shape entirely new to us is illustrated in Pls. LXII, 21–4; LXVI, 22, 28. These strange little hand-made jars apparently do not occur above the level 20·6 ft. below datum (Pl. LXII, 23). Their origin seems to have been the gourd, and a somewhat similar vessel has been found at Jemdet Nasr.[4]

[1] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, pl. LIV, 26.

[2] *Mohenjo-daro and the Indus Civilization*, pl. LXXXIII, fig. 4.

[3] *Ibid*, pl. LXXXIII, figs. 6–8.

[4] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, pl. LXIV, 32. Very similar vessels, *Kamandalu*, made of the actual gourd are carried by ascetics in India at the present day.

No. 21 in Pl. LXII stands 3·15 ins. high and is covered with a pink slip. Its base was roughly trimmed, and though the handle is missing sufficient remains of it to show that it was the same loop-like shape as in Nos. 23 and 24. This jar was wheel-made and roughly decorated with bands of black paint.

No. 22 in the same plate (see also Pl. LXVI, 35) is the first of its shape that we have found, and the only member of this group with a red wash. It is wheel-made with a rounded base, and stands 1·75 ins. high. Level : – 17·2 ft.

No. 23 (see also Pl. LXVI, 28) is hand-made and stands 3·15 ins. high. It has a cream wash and the upper part of it is roughly ornamented with bands of red. The handle which is round in section is 0·3 in. in diameter.

No. 24 (see also Pl. LXVI, 22). This roughly made vessel has no slip. In section, its somewhat clumsy handle is 0·4 in. in diameter.

Two of the condiment dishes (Pl. LXVI, 15, 27) have each a plain flat perforated handle. They are, however, included with the other partitioned dishes in *Type AM.*

Type AD (Pls. LII, 7 ; LVII, 18, 19 ; LXIV, 19).

The *Group AD* (Grey Ware) of the first book on Mohenjo-daro has now to be split up, and the vessels made of this special variety of clay are distributed according to shape to the types to which they properly belong. This " grey ware " has been discussed earlier in this chapter (p. 174-75).

Type AD comprises those vessels with squat wide bodies which differ from *Type L* in having a wider mouth and base, and the greatest girth well below the centre of gravity.

No. 18 in Pl. LVII is exceptionally well made. It has an unpolished, dark red wash which even extends down inside the mouth of the vessel, the interior of this jar being almost as well finished as the outside. It is decorated with plain narrow bands of dull black paint. No. 19 is thin for its size and very carefully made. It is ornamented with narrow bands of thin, purplish-black paint on a light red slip.

No. 19 in Pl. LXIV. Also very carefully made, and decorated with black bands on a light red slip.

Type AE (Pls. LII, 21, 26 ; LIII, 19 (?), 53 ; LVII, 16, 20, 21, 23, 24 ; LXII, 25, 26 ; LXIV, 16).

Jar-stands are found in considerable numbers, especially those of the shape figured in Pls. LVII, 16 ; LXII, 25. We have, however, lately unearthed several new forms which are described below :—

No. 26 in Pl. LII has a thin base pierced by a large irregular hole. The existence of another stand (Pl. LIII, 19) of similar shape with a similar hole in the base proves that this hole is not accidental. It seems likely that some of these jar-stands were not turned over on the wheel to finish the reverse side properly.

No. 53 in Pl. LIII is unique in shape, and substantially made with a cream slip on the outside only. It is 7·25 ins. high and 16·2 ins. in diameter. When found, the large storage jar, No. 56 in the same plate, was resting in it—the first occasion on which a vessel has been found actually supported by a stand.

Plate LVII.—The two holes in the roughly made, round stand, No. 20, suggest that it was intended to hold a water-vessel. Its very broad substantial base would make it suitable for standing on a brick floor.

No. 21 is a very unusual jar-stand, a simple solid ring, whose side is semi-circular in section. The outside which is very slightly concave is covered with a deep red wash and the inside with a cream slip. Both inside and out, this stand was carefully polished with horizontal strokes.

No. 23 is a large stand covered with a cream slip. Its base is unusually wide and flat for this type of support, in which the base and rim are usually so much alike as to be almost reversible. Possibly this jar-stand was intended to accommodate two different sizes, as are many egg-cups of to-day.

No. 26 in Pl. LXII is a very unusual stand, 2·65 ins. high, that was evidently made to hold a vessel with a pointed base. It is well made and finished, with a red wash on the outer surface.

A very large jar-stand of soft, cream-coloured lime-stone (Pl. CIV, 21) is fully described in Chap. XII.

Type AF (Pls. LIV, 4; LVII, 22; LVIII, 2; LIX, 24, 25; LXII, 27–33; LXVI, 5, 16; LXVII, 13).

More or less cylindrical vessels perforated all over are quite frequent finds. It was first of all suggested that they were strainers, but after Sir Aurel Stein found a complete specimen in Southern Balūchistān filled with charcoal and ashes the view was taken that they were used as heaters.[1] I am still inclined to think that they were chiefly used for pressing curds, for which they would be well adapted, though they could equally well be used as braziers—some of the larger ones would hold a considerable amount of charcoal. They are always wheel-made, of a light red paste sometimes coated with a cream slip. The holes were made by pushing a stick through the sides while the clay was still damp, which invariably left a ragged edging round the inside of each hole. This would not matter if the vessels were used as heaters, though it would certainly make them difficult to clean properly if curds were pressed in them. There is always a larger hole in the base, which suggests that these vessels were supported on a stick. They were made with the base flat, tapered, or rounded, indifferently. As possibly some other use[2] may be suggested for these perforated vessels, those found since 1927 are individually described below, though in form they vary but little from those found before that date.

No. 22 in Pl. LVII. No slip. Very roughly made with comparatively few holes.

No. 2 in Pl. LVIII (see also Pl. LIV, 4). Cream slip. Somewhat roughly made. Holes in upper part average 0·18 in. in diameter, towards the base 0·06 in. in diameter. The large hole, 1·2 ins. in diameter, in the bottom of the jar was roughly cut with a knife.

Nos. 24 and 25 in Pl. LIX. These two vessels were found together, the larger one unfortunately broken. The base of No. 24, like that of No. 29 in Pl. LXII, is slightly narrowed, perhaps to allow of its being placed on a stand.

[1] "Archæological Tour in Gedrosia," *Mem. Arch. Surv. Ind.*, No. 43, p. 64, 130, pl. XXV.

[2] Mr. Ramaprasad Chanda has tentatively suggested that this type of vessel may have been used for sprinkling water on bone relics, according to Sâyana's commentary on a verse in the *Atharvavada* (18, 4, 36). "The Indus Valley in the Vedic Period," *Mem. Arch. Surv. Ind.*, No. 31, pp. 11, 14.

Plate LXII.—No. 29 is an exceptionally fine specimen, no less than 20·5 ins. high; and though it was found broken, very few pieces were missing. The holes are some 0·34 in. in diameter. In addition to its large size, it is unusual in that it is decorated with scored lines round the neck. This vessel might quite well have been used as a brazier. No. 33 (see also Pl. LXVI, 16) is a very simple, shape and not so closely perforated as the other vessels of this type. It has a cream slip on the outside, and the holes average 0·06 in. in diameter, save the one in the base whose diameter is 0·33 in.

No. 31 should be included in this group, though it is a "Miniature," only 1·4 ins. high. It is perforated all over with holes 0·05 in. in diameter, and there is a hole of the same size in the base. This little vessel closely resembles No. 5 in Pl. LXVI, which is also small, being only 2·4 ins. high.

A fragment of a vessel of exceptional shape is seen in Pl. LXVII, 13. The apparent rim may have been the base, or the actual rim may have been added and has been broken off. The holes which are 0·15 in. in diameter are very closely set. They were more or less smoothed over inside before baking, a somewhat unusual feature.

Judging from the fragments found, these perforated vessels were as frequently used in the earlier as in the later occupations, and they were almost invariably covered with a cream-coloured slip.

Type AG (Pl. LVII, 25).

Only one specimen of this type has been found, and it seems strange that such a useful shape was not more used. In some respects it is not unlike *Type AD*, but it has a more pronounced neck, and, moreover, the carination of its body is well centred which gives it a less clumsy appearance. There is no trace of a dégraissant or of carbonaceous material in its compact, dark, slate-coloured paste, on which the black slip was semi-polished by a pebble or smooth piece of bone. This jar is fairly thin for its size and carefully made.

Type AH (Pl. LXVI, 54).

This curious pottery which we have termed "Knobbed ware" is very rare; indeed, only this one complete specimen has been found since 1927, and a sherd or two at infrequent intervals. This vase which is 3·9 ins. high is made of a somewhat porous, light grey paste, unmixed with any visible dégraissant; nor has it any slip. It is fairly thin for its size (0·12 in.), and the knobs which are all about the same size and shape are fairly regularly arranged in five rows. In shape this vase resembles none of the same type that have been found before,[1] though it is not unlike some of the storage jars (see Pl. LXII, 47, 48). If this ware was not imported, it is difficult to account for its scarcity. In the previous book on the site, I mentioned the ancient cultures in which this knob decoration was used.[2] To these references, I would now add that Dr. Frankfort has found several sherds of knobbed ware—hitherto unknown in Babylonia—at Tell Asmar; and these he dates to about 2,500 B. C.[3]

[1] *Mohenjo-daro and the Indus Civilization*, pl. LXXXVIII, fig. 16.

[2] *Op. cit.*, pp. 315-6.

[3] Dr. Frankfort has since published photographs of these sherds, and it does not look as if his jars had been imported from the Indus valley. *Illust. Lon. News*, Oct. 1st, 1932, p. 504, fig. 7 (left). Also see *Ann. Bib. Ind. Arch.*, 1932, p. 4, pl. I, fig. h; *Tell Asmar. Khafaje and Khorsabad*, p. 50, fig. 32.

Type AI (Pls. LII, 32, 39, 40 ; LIII, 2 ; LVII, 32 ; LX, 40 ; LXVI, 50).

Jars of this full-bodied type are fairly common. They average about 9 ins. high, and are usually washed over with a cream slip, never with a coloured one. As they are almost invariably substantially made with thick rims (Pl. LII, 32, is an exception) and adequate flat bases, they were probably used for water. No. 50 in Pl. LXVI is 12·2 ins. high.

Type AJ (Pls. LIV, 2 ; LVI, 36 ; LXII, 38 ; LXV, 15 ; LXVI, 10).

Jars of this type are rarely found, and though in general form they resemble some of those of *Type E*, they lack the ledge round the neck. All those found are decorated with simple bands of colour or, more commonly, with somewhat elaborate devices, always in black on a red or cream slip.

The decoration of the jar in Pl. LXII, 38 (see also Pl. LXVI, 10), which was painted in black on a red slip, is very unusual ; cross hatching was as a rule only used to fill in animal and plant forms.

The base, body and shoulder of No. 15 in Pl. LXV were washed over with a thick cream slip, upon which the design was painted, and the neck and rim received a second wash of red.

Group AK (Miniature Vessels) (Pls. LII, 4–6, 12, 13, 23 ; LIII, 8, 10, 37 ; 48–50 ; LV, 2–4, 8, 9, 27, 34 ; LVI, 18, 20, 21, 24, 42 ; LVII, 27, 34 ; LX, 3–5, 8, 43, 45–49 ; LXI, 13, 42, 45 ; LXII, 30, 31, 41, 42 ; LXIV, 25, 27, 38, 41, 56 ; LXV, 29, 46 ; LXVI, 3, 4, 8, 31, 32, 39 ; CXLI, 5, 7, 8, 52, 57).

This small ware is found in considerable numbers and includes those vessels, except dishes, cups, and a few other pieces, whose heights do not exceed 2 ins. Those offering-stands which though exceeding this height are obviously miniatures are included in this group. That, with few exceptions,[1] these little jars were made expressly for toilet purposes and to contain expensive substances seems evident, since few of them are capable of holding any considerable quantity. They would be quite suitable for eye-paints, scented fats, and other cosmetics, especially the jars made of faience or vitreous paste, of which we occasionally find an example (Pls. LVI, 24 ; CXLI, 5, 7, 8 ; CXLIII, 1). Some of these little jars reproduce the shapes of the larger pottery, but more care was taken in the making and decoration of these miniature specimens in view of their special use.

Copies in miniature of larger vessels have also been found at Jemdet Nasr near Kish,[2] and Childe states that miniature vessels are very common in the Polgar Culture of the Danubian Civilization.[3] Specimens have also been recovered from various sites in Crete, but these, unlike the Indus examples, are thought to be votive-offerings.[4] I do not know of their occurrence elsewhere, but I think it quite possible that they were commoner than we at present suppose and have not been thought worthy of report.

Though they vary greatly in shape, the better finished miniatures all have a carefully polished cream or red slip, and are very frequently decorated with simple black lines. They are found at all levels from 23·6 ft. below datum upwards.

[1] Those obviously made by children and certain very small vessels of rough make (Pl. LXIV, 25, 27) which may have been used to carry purchases of small quantities of some liquid.

[2] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, pp. 240-1.

[3] *The Danube in Prehistory*, p. 77.

[4] The Cretan examples are dated to M. M. II, and range from shallow clay dishes to well-made copies of superior wares. Evans, *Palace of Minos*, vol. I, pp. 37, 219 and 252.

No. 42 in Pl. LVI is a miniature bowl of unusual shape, only 0·75 in. high, but none the less very carefully made. Its fabric is the fine, compact, pink paste that was commonly selected for pieces of exceptionally small size. Time and damp have almost entirely removed the original red slip.

Plate LXI.—No. 42 (see also Pl. LXVI, 3) is a miniature hand-made cup, 0·75 in. high. It is perhaps the work of a child, as we have found no larger vessel like it at Mohenjo-daro, though cups of this shape are very well known from early Sumer.

No. 43 (see also Pl. LXVI, 8) is a small, hand-made vessel, 1·29 ins. high, which was made by coiling a long thread of clay, to produce which several shorter lengths were joined end to end. It may represent a basket, but possibly it was a child's attempt to copy one of the large storage jars which were built up by this method. I have for some time suspected that some or all of the storage jars were made in this way, as this method is in vogue in some parts of Sindh at the present day for the manufacture of large pans.[1] The surface is beaten smooth with a paddle while the clay is still damp. This little vessel was made of the usual clay and covered with a cream slip.[2] [3]

The small hand-made vase, 1·67 ins. high, No. 39 in Pl. LXVI, has two roughly made ribs round the outside. Nos. 31 and 32 in the same plate, 1·39 ins. high, are exceptionally well made.

Type AL [Feeding cups (?)] (Pls. LXI, 46, 50 ; LXVI, 1, 2).

These spouted cups are very rare ; only three have been found since 1927, one of which (Pl. CXLIII, 10) is of alabaster and is described in Chap. X. The pottery cups could have been used as lamps ; but they show no marks of burning at the spout, nor are they blackened by smoke. Alabaster would be a very unsatisfactory material for a lamp, as it would be likely to calcine at the spout. Moreover, the inside diameter of the spout appears in some cases to be too small to take a wick.[4]

Plate LXI.—No. 46 (see also Pl. LXVI, 2). 3·2 ins. long ; inside diameter of broken spout 0·11 in. Made of the usual clay with no slip ; rather overfired. No. 50 (see also Pl. LXVI, 1). 1·93 ins. high ; inside diameter of long spout 0·15 in. Dark red slip. Both these cups come from the lower levels, No. 46 from as deep as 22·5 ft. below datum.

Type AM (Pls. LXVI, 12, 15, 21, 27, 34).

These unusual dishes with two compartments, doubtless the counterpart of the modern cruet, are only found in the lower levels, No. 15, from 21·3 ft. and No. 12 from 12 ft. below datum. They are always very roughly made, and only No. 12 has a cream slip. Two of them (Nos. 15 and 27) have a simple pierced lug as a handle. No. 12, 3·85 × 1·9 × 1·25 ins., is the best made of the five.

[1] Mackay, " Painted Pottery in Modern Sind," *Journ. Roy. Anthrop. Inst.*, vol. LX, p. 13.

[2] *Cf.* a very early glazed pottery object of Protodynastic date. Quibell, *Hierakonpolis*, p. 8, pls. XXI, 9 ; XXII, 6. And again, for the actual style of basket, Carnarvon and Carter, *Five Years' Explorations at Thebes*, pl. XXII (2 m.).

[3] An exactly similar object a little over 2 ins. in diameter has been found by Mr. M. S. Vats at Harappā. It seems likely, therefore, that a basket is represented rather than an imitation of the coiling method of making the larger storage jars. *Ann. Rep. Arch. Surv. Ind.* (1927-28), pl. XXXIV (f).

[4] For other examples and comparisons with feeding-cups found outside India, see *Mohenjo-daro and the Indus Civilization*, p. 310, pls. LXXXIII, 20 ; CI, 18.

No. 15 is 4·48 ins. long by 2·1 ins. wide, excluding the handle, with two compartments, each 0·8 in. deep. It looks as if it had been made at home.

No. 21 is 4·05 × 2 × 1·05 ins. with compartments 0·7 in. deep and sides 0·23 in. thick.

No. 27. 3·85 × 1·8 × 0·95 ins. No. 34. Now 4·17 × 2·65 × 0·95 ins., has a particularly rough and badly shaped base. The walls of the compartments, which are 0·75 in. deep, average 0·35 in. in thickness.

So far only dishes of two compartments are known, but a cruet or offering-dish of three compartments is apparently represented on seals 279, 430 and 518.

Type AN (Pl. LXV, 48–50).

These three vessels of a type that is very rare were all found together 13·9 ft. below datum. They are roughly and clumsily made, two of them (Nos. 48 and 50) with a cream slip. The rim seems to have been made very thick to enable them to stand a good deal of knocking about.

Type AO (Pls. LIII, 9, 55 ; LXII, 37).

The two smaller of these very distinctive vases are almost exactly alike, with a vertical neck and small solid base. Both were carefully made and are covered with a cream slip. The third (Pl. LIII, 55) differs from them slightly in that its base is flared and slightly concave. Its slip is red.

Type AP (Pls. LXV, 14 ; LXVI, 26).

This jar, represented in both line drawing and photograph, is exactly duplicated by one from a slightly lower level, the two being the only jars of this type to be found as yet. Its base is very rough and uneven, and was evidently trimmed with a knife. The slip is slightly pink.

Type AQ (Pl. LXIV, 42).

We have found only one vessel of this shape, but the resemblance of its upper part to that of the bronze kohl-pot (Pl. CXXVIII, 18) from the level −19·6 ft. suggests that the pottery jar was put to the same use. The base of this jar had been broken off and the fracture rubbed down smooth to bring it into use again. It is made of the usual clay, with no slip. Level : −23·3 ft.

Type AR (Pl. LIII, 36, 46).

Both these vessels appear to be hand-made, and their bases were roughly pared with a knife (or some other sharp instrument). No. 46 has a cream slip, but No. 36 none.

Group AS (Large Storage jars) (Pls. LIII, 56 ; LVII, 39–43 ; LVIII, 3–15 ; LIX, 1, 4, 7, 31, 32 ; LXII, 45–52 ; LXIII, 1–15 ; LXV, 43).

A considerable number of these large jars had evidently been made expressly to hold water or to serve as receptacles for such articles as clothing, grain, meat, smaller pottery, and the like. If properly covered, such jars as these are both insect- and rat-proof and make very efficient cupboards, as do the great unbaked clay jars in the modern Sindhi village. Owing to their large size, they were nearly always broken when found ; but when the damage is due entirely to earth pressure, they can easily be more or less restored to their original condition.

Like the smaller wares, the storage jars were finished—even if not entirely made—on the wheel; they may have been built up by the coiling method and shaped by patting with a paddle, and were then finally smoothed on the wheel. In several cases I am inclined to think that this was so, but it is impossible as yet to be certain on this point.[1]

The same clay that burns light red or pink was used for these large jars as for the smaller pottery, mixed with sand, mica or lime, or all three. All save four (Pls. LVIII, 12; LXII, 46; LXIII, 7, 12) have a slip, which varies from a mere rough wash to quite a thick coating. On twenty-five the slip is cream; on twelve red; five have a dark-brown slip (Pls. LVII, 42; LVIII, 4; LXII, 48; LXIII, 4, 6; LXV, 43);[2] and one a purple-black slip that was probably tinted with manganese (Pl. LVIII, 15).

On the jar in Pl. LXII, 50, a light red slip appears to have been painted over the original cream one.

On a certain number of jars (Pls. LVII, 40, 41; LVIII, 5, 8, 11–13; LIX, 4, 31, 32; LXII, 45, 50; LXV, 43), there are one or more cord marks round the widest part. These are not conspicuous enough to have served any decorative purpose and were produced by the string that was wound round the jars to prevent sagging during the drying preliminary to baking.

Thirteen of these storage jars are decorated with simple black lines on a slip, which is cream or pink in Pls. LIX, 1; LXII, 51, 52; LXIII, 9, and red or brown in Pls. LVII, 40, 43; LVIII, 14; LIX, 4, 32; LXII, 45, 50; LXIII, 3, 15. But a storage jar covered with a red slip is nearly always decorated with bands of black paint, whereas on the jar in Pl. LVIII, 10, the bands are chocolate-coloured.

Though No. 7 in Pl. LVIII had unfortunately lost its rim, it still stands 19·75 ins. high. Decidedly unusual in both shape and decoration, it was probably a water-jar. It is fully described in the section on painted pottery.[3]

The fine jar, Pl. LXIII, 4, was covered inside and out with a thick chocolate-coloured slip, perhaps to waterproof it; and in common with No. 13 it is ornamented with scored lines, a mode of decoration that is very unusual on the storage jars.

The vessels that have a slip sometimes look as if they had been rubbed down with a smooth instrument, and it is conceivable that an animal's rib, such as that illustrated in Pl. CV, 55, was used for this purpose.

Very rarely do we find designs painted on storage jars, and No. 15 in Pl. LXIII is a notable exception. The pattern upon it suggests, however, that these jars were sometimes kept in rope slings.

It has already been stated that these very large jars were sometimes used as larders. In No. 12 in Pl. LVIII, two animal ribs, a few fish-bones, and a mussel-shell were found. Several bones and small pottery jars had been stored in No. 5 in Pl. LXIII. There were also animal bones in Nos. 1, 7 and 32 in Pl. LIX and No. 10 in Pl. LXIII. Unfortunately, these remains were in nearly every case so

[1] No. 32 in Pl. LIX certainly looks as if it had been made in this manner.

[2] The jar in Pl. LVIII, 4, was possibly coated with a bituminous substance in an attempt to waterproof the surface.

[3] *Cf.* two somewhat similar vessels in *Mohenjo-daro and the Indus Civilization*, pl. LXXXVII, figs. 4, 5.

decayed that it has been impossible to identify them, though that they were animal remains admits of no doubt. No. 40 in Pl. LVII contained three small vessels of *Type B*, two of *Type S*, and one of *Type C*, in addition to two beads and some fragmentary animal bones.

The narrow bases of most of these vessels would have necessitated their being set in the earth or on stands, which may have been of wood and have perished in the cases where no support to the jar was detected. We have, in fact, found one or two of these jars set in hollows in burnt brick pavements with a good part of the vessel below the level of the pavement. Sometimes special brick-built basins were made to take jars of this type,[1] and they were often supported by bricks placed loosely round them. The very large limestone stand seen in Pl. CIV, 21, probably accommodated one of these large jars.

Of shapes that differ from those illustrated in the first book on Mohenjo-daro,[2] there are unfortunately only a few (Pls. LXII, 49 ; LXIII, 2, 5, 11) ; but this is not surprising as these vessels were all made for storage purposes. The jars in Pls. LVII, 43 ; LVIII, 15 ; LXII, 50, 51 ; LXIII, 10, 15, have unusually wide mouths and were possibly expressly made to hold water, from which supplies were continually being taken.

The very large pan in Pl. LXIII, 11, is no less than 4 ft. in diameter, with the base and sides an average thickness of 0·63 in. It was wheel-made, and its base shows that it was laid to dry on a sand-bed which contained a high proportion of mica ; it is possible, indeed, that this vessel was made on the river bank. Inside the base a number of circular patterns were impressed with a stamp (see photograph in Pl. LXVII, 23). Fragments of the bases of other large pans similarly ornamented are illustrated in Nos. 21 and 24 in the same plate.

Storage jars were frequently used as cesspits outside the poorer houses. No. 13 in Pl. LVIII was, in fact, found with its mouth just projecting above the brick paving of a small area of room 29 in House II, Bl. 7, from which it obviously collected the water. No. 4 in the same plate, which was set in the ground outside House VII, Bl. 7, in Fore Lane, received water from an opening in the southern wall of room 80 (Pl. XXXVIII, d).

It cannot be supposed that these well-finished storage jars, especially those that were decorated with bands, were made expressly to receive drainage, but when once they were holed or damaged they served this purpose admirably ; they were always set so deep in the ground that little of them appeared above it. It is conceivable, however, that a municipality might use new jars for the purpose.

Monochrome and Polychrome Pottery.

The pieces of monochrome ware illustrated in Pls. LXVIII, LXIX, LXX were selected from a number of sherds found in the DK Area (G. Section) during the seasons 1927–31. Those in the first two of these plates are of Late date, their levels ranging from 1·3 ft. to 11·8 ft. below datum. Pl. LXX illustrates vessels and sherds from the lower levels, ranging from 12 ft. to as far down as 32 ft. below datum, at which level the sherd No. 9 in Pl. LXX was unearthed.

[1] Pl. XVII, Bl. 2, house II.

[2] *Mohenjo-daro and the Indus Civilization*, pls. LXXXIV ; LXXXV ; LXXXVI.

The two pieces of pottery illustrated in Pl. CXII, 6, 7, come from even earlier levels. The first (DK. DG. 53) is a small vessel, 1·75 ins. high, coated with a pink slip and decorated with chocolate-coloured lines. Both side and base are thick for the size of the vase, whose lower portion was roughly trimmed with an edged instrument. Locus: Deep excavation, Bl. 7. Level: –39·4 ft.

The second (DK. DG. 38) is a sherd, 5·3 ins. long and 0·5 in. thick, with a coarse, dark red slip, upon which a very unusual pattern is painted in purplish-brown. The curvature of this sherd shows it to be part of a tall, narrow vessel. The design upon it is possibly taken from a sling of rush or cord, in which vessels of this kind may have been carried. The paste is light red in colour with a large admixture of lime and mica. Locus: Deep excavation, Bl. 7. Level: –37·2 ft.

Unfortunately, not a single unbroken painted jar was found in the upper levels, and only two in the lower levels (Pl. LXX, 6 and 7); nor were these perfect in the true sense of the word. Most of the sherds, moreover, are too small to determine satisfactorily more than a small portion of the designs with which the jars were ornamented. The cause of this destruction was mainly the quarrying for bricks which took place during the Late Period, and again in the Kushān Period when the bricks of the ancient city were extensively used for the erection of religious buildings.

On the other hand, it is unlikely that the people of the Indus civilization left much behind them when they finally evacuated Mohenjo-daro. They certainly removed most of their undecorated wares, for pottery groups are few and far between; and it is probable that the painted ware was even more valued, so that any left behind would have been taken by casual marauders. The people who partly occupied the site and used it as a quarry in the Kushān Period probably had no use for the older wares,[1] and would have smashed all the ancient pottery that they came across in their search for bricks.

From their thickness and curvature it is evident that the great majority of the sherds are from vessels of some size, ranging from 1 ft. 3 ins. high to over 2 ft. in height. No. 10 in Pl. LXIX is, however, thin ware and No. 20 in the same plate moderately so. Nos. 1 and 4 in Pl. LXVIII also came from comparatively thin-walled vessels which judging by the curvature of the sherds probably did not exceed 1 ft. in height.

The painted pottery, whether monochrome or polychrome, was as a rule made of the same kind of clay, with the same dégraissants as was the unpainted ware. Grey ware, however, was very seldom painted, and we have found no further specimens since 1927.

In two cases there was neither slip nor wash (Pls. LXVIII, 5; LXIX, 20), and the design was painted straight on the actual surface of the pottery. But this method of procedure could hardly have been satisfactory, because the porous surface of the jar would have been rough and the brush would have tended to dry too rapidly. In every other sherd that I have examined the paint was applied to an already polished slip; that is, the polishing was not done after the painting of the design. The paint invariably has a matt appearance, and, moreover, wherever it was applied at all thickly, it has a distinctly raised effect.

[1] However clean and well preserved an ancient pottery vessel may be, it is rarely re-used by the modern Arab or Indian. They greatly mistrust the uses to which ancient wares had been put; and they are also unfamiliar with their shapes. Though caste enters largely into the question in India, the same repugnance exists elsewhere.

Paints.

The pigment most used was a manganiferous haematite which burns a warm or a purplish black, according to the amount of iron contained in it. The very same pigment is used for the painted pottery of Sindh to-day ; it is bought in the bazaar in small lumps and rubbed down to the required consistency.[1] This was the only paint used for the monochrome ware of Mohenjo-daro.[2] For the polychrome ware a red ochre was also used, and sometimes a green pigment, *terre verte.*

When the manganiferous paint is applied in a sufficiently fluid state to a slip, and especially to a wash, it readily penetrates to and stains the surface of the pottery below. This is clearly seen in No. 18 in Pl. LXVIII, where despite both paint and wash having disappeared through weathering the design can still be made out. It is not often, however, that the paint was applied in so fluid a condition ; as mentioned above, it generally has a thick and opaque matt appearance, and is sometimes raised a little above the level of the slip.

Brushes.

Probably mops were used for applying the slips, and brushes of hair of varying fineness for painting the designs. Owing to the extreme regularity in width of the fine lines used to hatch the leaves on sherd No. 18 in Pl. LXVIII, I am inclined to think that a reed pen was used for certain details. That the reed pen was a very early invention seems the more probable that, according to Sir Arthur Evans, it appears to have been used in Crete for writing the inscriptions on certain cups of the M. M. III Period.[3]

The monochrome sherd (Pl. LXX, 28) found at 26·7 ft. below datum is rather thick for its size and, in addition to being painted in rather a different style from the sherds of the higher levels, it has a dark core due to uneven baking, which is very unusual in the pottery of Mohenjo-daro.

Monochrome Pottery.

Arrangement of Ornamentation.

Owing to the scarcity of unbroken painted jars, it is uncertain exactly how the motifs upon them were arranged. Some indications are afforded by the larger sherds and those pieces, such as rims and bases whose place in the vessel can be more or less satisfactorily determined. But even from a sherd with a portion of the rim attached, it is not always certain that a particular pattern was repeated all round the original jar ; quite conceivably it alternated with a second or even with two other motifs, as in Pl. LXVIII, 1.

The patterns on the pottery of Mohenjo-daro are not nearly so interesting as those on the wares of Sumer and Elam. Very narrow borders are somewhat rare and usually occur at the top of the jar just below the rim. These borders were also not often diversified ; in general, they consist of one device framed between two or more horizontal lines which serve as an edging. The bead-pattern in Pls. LXVIII, 3 ; LXX, 13, was the one generally favoured.[4] It had a

[1] Mackay, *Journ. Roy. Anthrop. Inst.*, vol. LX, p. 133.

[2] Very rarely indeed was red used on grey ware ; no fresh examples have been found since 1927.

[3] *Palace of Minos*, vol. III, pp. 423-4. The reed-pen did not, however, appear in Egypt until Roman times.

[4] Perhaps the neck of the jar was considered especially appropriate for a decoration derived from a string of beads.

wide range of variation, and is also found on the wares of Sumer, Elam, Sistān and Balūchistān. Next in order of popularity comes the sun-motif, either a simple circle or one with a plain or serrated spot in the centre (Pls. LXIX, 18; LXX, 5, 15, 30), and often with a serrated outer edge (Pl. LXVIII, 21, 24) which is also a well-known form amongst the beads of Mohenjo-daro.

Sometimes there were two bands of decoration round the neck, one above the other, but not always made up of the same device. And plain bands of paint quite frequently take the place of the above three more decorative borders.

The principal decoration of a painted jar starts as a rule just below the neck ornament and is often divided into two registers by a broad horizontal band of colour. Sometimes it was also divided into panels by making a tree or plant motif serve as a vertical border (Pl. LXVIII, 24). But when trees were the sole motif in a broad band of decoration, their boughs or leaves were so arranged as merely to touch one another or a narrow vertical line between, if, as is so often the case, the trees were not of the same kind (Pl. LXIX, 19). This vertical line is sometimes surmounted by a tuft, which can hardly belong to the trees on either side of it. The same motif was rarely carried right round a jar; to avoid monotony it was alternated with a second design, and a third was sometimes interpolated.

It should be noted that the common Elamite scene of animals in file is not found on the pottery of Mohenjo-daro, though it is a fairly common device on the pottery amulets (Pls. XC, 13; CI, 1, 4). The nearest approach that we have to this scene is on a jar found during the earlier excavations at Mohenjo-daro;[1] but the shape, fabric and style of decoration of the jar in question all suggest that it was an importation. Whenever animals were depicted on the pottery, they were always more or less isolated, though, as a rule, they are surrounded by various kinds of herbage to give more realism to the scene.

Judging from their regularity, the broad horizontal bands of black that separate the various borders and scenes were painted either when the jar was on the wheel or by means of the special contrivance that is used in Sindh to-day, *i.e.*, a round block of wood with a pivot that revolves on a hard surface.[2] I hardly think, however, that this appliance could have been used to paint horizontal bands on the larger jars. Whatever form of wheel was employed when painting these lines, they almost invariably join up correctly; and though they are not always equal in width all the way round the jar, this may have been caused by unequal pressure of the brush or mop with which the colour was applied.

We rarely find the lower portion of a vessel decorated, chiefly for the reason that most of the painted jars have round or pointed bases and were set on stands or in the ground, whereby the ornamentation would have been hidden. The lowest register was often bounded below by a plain band or bands of paint, with or without simple festoons hanging from them, or by a double wavy line as in Pl. LXVIII, 25.

Designs and Patterns.

It is to be regretted that as yet the human figure has not been found on any of the painted pottery of Mohenjo-daro; though we have many hundreds of

[1] *Mohenjo-daro and the Indus Civilization*, pl. LXXXIX, fig. 1.

[2] Mackay, *Journ. Roy. Anthrop. Inst.*, vol. LX (1930), p. 132, pl. II, fig. I.

sherds, most of them are of little interest or repeat each other.[1] Nor do any parts of the human body occur, with the possible exception of the eye-like device seen in Pl. LXVIII, 12, 21, 24. That the omission of the human form was not due to religious scruples is to be inferred from the frequency with which human figures occur among the pictographs on the seals, though the seals were perhaps quasi-sacred as they apparently served as seal and amulet combined. The human figure is known, however, on the painted pottery of both periods of Susa, of Musyan, of Sumer and also predynastic Egypt.[2]

Animals.—Animal figures are comparatively rare in comparison with the many other motifs, geometric or otherwise, on the pottery of Mohenjo-daro. In order of popularity the ibex is easily first[3] and it is interesting to note that this animal was also favoured as a decorative motif on the wares of Elam, Sumer and Egypt. Why it should have been selected as an especially suitable subject for this purpose in all these ancient cultures, it is not easy to understand. Possibly the animal was domesticated—an open question; another variety of wild goat (*Capra Falconeri, Hugel*) has repeatedly been bred in confinement with the domestic goat.[4] The ibex, however, appears only four times upon the seals; sometimes its head only, in combination with two other heads all joined to one body.[5]

On sherd 14 in Pl. LXVIII is seen a representation of the ibex with long curling horns, whose tips touch the back in the same way as in the representations of the animal on the pottery of the First Period of Susa. It is not often that animal figures are entirely blocked in, as is this one and also the animal in Pl. LXX, 24. Thick black outlines are common, but almost always a hatched portion in the middle, whether of bird or mammal, apparently represents the plumage or hair (Pl. LXX, 29), though primarily, I think, the idea was to avoid the very heavy appearance conveyed by a solid mass of colour. The object in front of the animal in Pl. LXVIII, 14, may be an endeavour to represent a hill in the animal's natural habitat; it seems too crude in shape for a plant or bush. Nor does it suggest a wicker-work manger; if that were the case, it would imply that the animal was domesticated.[6] The object on the right of the sherd seems to be the comb-like device which appears so often on the pottery of Mohenjo-daro, frequently with one or more basket-like objects above it.[7]

Sherd 18 in Pl. LXVIII (see also Pl. LXIX, 12) has scaled badly in places. On the left is a tree motif which strongly suggests the leaves of the banana, half-closed so that the lower side of one half is seen.[8] On the right the figure of an

1 The human figure is portrayed on painted pottery unearthed at Harappā, which is, however, of uncertain date. *Ann. Rep. Arch. Surv. Ind.*, 1927-8, pl. XXXV (g).

2 But not in Minoan Crete.

3 Probably *Capra aegagrus*. whose habitat is from the Khīthar Range in Balūchistān, about fifty miles from Mohenjo-daro, westward and northward to the Caucasus and the Taurus Range in Asia Minor. This creature favours low hills up to 5.000 ft. with a warm climate. Stockly, *Big Game Shooting in the Indian Empire*. pp. 121-2.

4 Watt, *Commercial Products of India*, p. 743.

5 *Mohenjo-daro and the Indus Civilization*, pl. CXII, fig. 382. Also pls. XCVII, 554; XCIX, 673; c, d, of this book.

6 *Cf.* the mangers in front of the various animals on the seals.

7 *Mohenjo-daro and the Indus Civilization*, pl. XCI, figs. 13. 14, 16.

8 One species appears to have been native to India.

antelope can still be made out, with long, nearly straight horns, extended well over the back[1] and the body hatched in the usual way. Several plant forms are seen below and in front of the animal. Of especial interest are the two additional objects, one above and one below the animal, which resemble rugous horns. These may very possibly have been intended to represent cast horns since similar objects are seen on a painted dish from Samarra associated with an animal of the same type.[2] It is permissible, I think, to assume that the painter of the animal inadvertently omitted the cross lines, by which the transverse ridges of horns are generally represented.[3] Possibly the idea of showing the cast horns beside the animal was introduced on painted pottery imported into the Indus valley from either Sumer or Elam.

The sherds 24 and 29 in Pl. LXX, which were found together at the level 16·3 ft. below datum, show two unusually short-horned ibexes surrounded by herbage.

It is impossible to recognise any animal on sherd 35 in Pl. LXX, owing to the scaling of the paint. This potsherd was found together with No. 36, on which also the animals depicted are not definitely identifiable, though possibly they are chameleons on the branches of a tree. Level: −12·3 ft.

The design on No. 39 in Pl. LXX is most unusual. It may perhaps represent the convolutions of a shell or be derived from a spider's web; the radials seem, however, too wavy in either case. The flatness of this sherd suggests that it was originally part of the pan of an offering-stand, or of the base of a large dish.

Birds.—Birds are also rarely represented on the pottery. Except one mutilated example found prior to 1927[4] we have only the specimens in Pls. LXVIII, 11, 22, 24; LXX, 27, 28, 32, to acquaint us with this branch of the fauna of ancient Sindh, though amongst the clay figures we have been able to identify the parrot, peacock and dove,[5] and on the seals the jungle-cock and duck.[6] This scarcity of bird motifs is somewhat surprising seeing that the bird is such a common device on the wares of Elam and in Egypt. In fact, one might go so far as to say that on the pottery of the two latter countries the bird took precedence of all other animal designs, with the exception of the ibex. I have, however, not seen a single bird on the painted wares of Abu Shahrein and Ur so far published, and only two on the pottery from Jemdet Nasr.[7] Bird motifs are, however, fairly numerous on the painted ware of Samarra.[8]

But none of the birds on the pottery of the other ancient sites are at all like those on the ware of Mohenjo-daro. The birds in Pl. LXVIII, 24, certainly appear to be jungle-fowl, though whether domesticated or not it is impossible to say. One bird is treading the other, and they are surrounded by various plants and, may be, trees. The long legs and plumed tail are both characteristic

[1] This animal has not yet been identified. The horns seem unduly long for the Indian Gazelle (*Gazella Bennetti*). It is apparently the same beast that is represented on a sherd from Nal; Hargreaves, *Mem. Arch. Surv. Ind.*, 35, pl. XVIII, fig. 9.

[2] Herzfeld, *Die Ausgrabungen von Samarra*, V, pl. VIII.

[3] For examples of rugous horns, see *Mohenjo-daro and the Indus Civilization*, pls. XCII, 27; CIII, 6, 11, 16; and pls. LXXXIII, 33; XCIV, 396, of this book.

[4] *Mohenjo-daro and the Indus Civilization*, pl. XCII, fig. 22.

[5] *Mohenjo-daro and the Indus Civilization*, pl. XCVI, figs. 1, 2, 4.

[6] *Op. cit.*, pls. CVI, 93; CXI, 338.

[7] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, pl. LXXX, 2.

[8] Herzfeld, *Die Ausgrabungen von Samarra*, V.

of the bird, though the comb is absent, unless it has been put very incorrectly as an after-thought in front of the bird's head. That the jungle-fowl, the ancestor of our present poultry, was well-known to the people of Mohenjo-daro is proved by two very clear representations of it among the pictographs on a seal found prior to 1927.[1] But even if the identification be correct, we do not know that the jungle-fowl was actually domesticated by the Indus Valley people, though that is probable.[2] There are said to be only four known species of the jungle-fowl, of which only one has been domesticated.[3] Modern attempts to breed these birds in captivity by placing clutches of eggs under ordinary domestic hens have invariably failed, as the chickens eventually become as wild as their parents. Domestication must, therefore, have extended over a long period of time, which may account for the absence of this very useful bird from the Near East and Europe until a much later period. It first appears pictorially in Egypt in the Eighteenth Dynasty,[4] and, as far as I can ascertain, it is not represented at all in Cretan art, whereas it was certainly known in Greece about the seventh century B. C.[5] A representation of the jungle-fowl has yet to be found in the arts of Sumer and Elam.

Owing to the sherd No. 27 in Pl. LXX being much broken, the species of the bird depicted is uncertain; but there is no difficulty in identifying the bird on No. 32 in the same plate as the peacock with its long neck and proudly held head, and its sweeping tail.

The little birds in No. 28 appear to be roosting in a *Pipal* tree. Their small size in proportion to the leaves makes it unlikely that the jungle-fowl is represented here, despite the shape of their tails. The fine hatching of the leaves shows that considerable care was taken in the execution of this scene. It will be noticed that, despite the coarse brush that was used to delineate these two birds, the artist's touch was sure. There is no haggling or undue attention to detail; with a few strokes verisimilitude was obtained. The hatching of the bodies is a very usual feature in archaic representations of birds or animals on pottery.

In No. 11 in Pl. LXVIII (see also Pl. LXIX, 11) and in Pl. LXX, 28, 32, a much finer brush was used, owing to both the scene and the ware on which it was painted being on a smaller scale. Even here, though the result is not so good, the effect obtained is quite charming. The birds in Pl. LXX, 28, seem very much alive.

Fish.—Only once is a fish represented on the pottery, and that on a polychrome sherd (Pl. LXX, 10) found at the level $-13 \cdot 3$ ft. This is somewhat remarkable, as it is a frequent device on the pottery of Elam and is prominent on some of the Nal ware. Moreover, several ivory models of fish whose use has not yet been satisfactorily determined have been unearthed from the site,[6] and the creature occurs quite frequently on the seals. Mohenjo-daro was also close to the Indus, which abounds with fish, and the large number of fish-bones and fish-hooks found in the course of excavation prove that this food was extensively eaten.

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXI, 338.

[2] The jungle-fowl is not known in Sindh at the present day. Both the grey and the red species, the latter of which is regarded as the ancestor of the domestic fowl, live in hilly country; Whistler, *Handbook of Indian Birds*, p. 316.

[3] *Gallus gallus murghi*.

[4] Carter, *Journal of Egyptian Archæology*, vol. IX, pp. 1-4.

[5] The fowl is portrayed on a finely decorated Corinthian plate discovered by Heurtley in a cave-sanctuary in the island of Ithaca; *Illus. Lon. News*, Dec. 6th, 1930, p. 1017.

[6] *Mohenjo-daro and the Indus Civilization*, pl. CXXXII, figs. 19, 20, 32, 40; and Pl. CXLI, 48, of this work.

Trees and plants.—Perhaps on no ancient pottery do plant or tree motifs appear so frequently as at Mohenjo-daro. They are always to be found associated with the representations of animals, with the evident intention of presenting the latter in more or less natural surroundings (Pls. LXVIII, 14, 22, 24 ; LXX, 28). But they also appear among motifs that have no connection whatever with floral devices. Curiously enough, very conventionalized forms were not favoured ; in fact, this manner of representing trees and bushes was as rare at Mohenjo-daro as it was usual in Sumer and Elam. We have only one really conventionalized tree, namely, the one on either side of the shield-like pattern in Pl. LXIX, 22. No. 14 in that plate may also represent a tree, but very roughly executed. This is a pattern whose use was almost entirely confined to large vessels, such as storage jars, on which refinements should perhaps not be expected as owing to the large area to be covered the work had necessarily to be done quickly. The vertical lines in this design may represent the trunks or branches of trees, and the horizontal lines either boughs or elongated leaves ;[1] in fact, the palm is more nearly represented than any other tree. We have no evidence, however, that the palm tree was known in Sindh in ancient days, though according to the Sumerian texts it was cultivated on the shores of the Persian Gulf. A few date stones have been found in the course of the earlier excavations, and the fruit, if not the tree itself, was probably known to the people of the Indus valley.[2]

The favourite manner of representing a tree was that seen in Pls. LXIX, 12, 19 ; LXX, 5, 16, 18, 37. It very strongly suggests the banana with its broad leaves half-closed ; the venation is extraordinarily correct, if so. The banana is thought to be a native of India and southern Asia. And though it likes a damper climate than that of Sindh to-day, it should be recalled in this connection that there is strong evidence that in the days when Mohenjo-daro flourished the rainfall was considerably greater than it is now. The difficulty in this identification is, of course, the arrangement of the leaves upon a stem, which is absent in the banana plant. The raceme or tuft that is nearly always shown at the top of the plant, of which several examples occur on the pottery found prior to 1927,[3] and one in Pl. LXIX, 19, of this book and perhaps another in Pl. LXX, 18, is, however, distinctly suggestive of the banana.

Other naturalistic plant designs are seen in Pls. LXVIII, 8, 13 ; LXX, 25. In the last, though the leaves are very roughly drawn, they recall those of the *Nīm* tree, which is very common in India and in most parts is regarded as sacred. No. 13 in Pl. LXVIII is a very fair representation of a branch of the *Pipal* tree. The little plant in Pl. LXX, 25, I cannot at present identify. It is represented as growing in a bowl and eloquently bespeaks a love of plants in some at least of the inhabitants of the ancient city.

The curious plant in Pl. LXVIII, 21, apparently has thick fleshy leaves and recalls a plant of the family Euphorbiaceae which grows wild in many parts of Sindh to-day and is sacred in some parts of India to the goddess Manasa. Apparently this plant is also represented in No. 22 in the same plate, but with the added refinement that the leaves are hatched.

[1] There is, however, the possibility that this pattern was derived from a rope or rush cradle, in which these jars may once have been slung.

[2] Date stones, as a rule, survive considerable exposure to weathering and even a certain amount of damp. As yet only a few have been found at Mohenjo-daro, in the VS Area prior to 1927.

[3] *Mohenjo-daro and the Indus Civilization*, pls. LXXXVII, 5 ; XCII, 5, etc.

The plant depicted in No. 25 in the same plate appears to have been cultivated, if the triangular projections on each side of it can be taken to represent ploughed land. The regularity of the hatching shows that the artist devoted considerable care to the drawing of this plant. In No. 26 of the same plate this plant is not quite so well-drawn; the venation of the leaves runs in the wrong direction. The various motifs to the left of it, amongst which we can distinguish a row of hatched triangles and some leaf-like shapes, have suffered badly from scaling due to salt.

No. 22 in Pl. LXX is a very uncommon device, which apparently represents a row of berries hanging from a branch.

Though the single hatching of many plant forms is evidently intended to represent the venation of the leaves, the well-drawn *Pipal* leaves in Pl. LXVIII, 13, are filled in with cross-hatching.

Intersecting Circles.—A very favourite pattern, but one that was apparently peculiar to the Indus Valley civilization, was a series of intersecting circles which in some cases formed the sole decoration of a jar.[1] Where carefully drawn, as in the unfinished example in Pl. LIV, 6, it forms a very effective ornamentation, but when more roughly delineated, as in Pl. LXX, 30, it is perhaps not quite so monotonous in appearance.

No. 6 in Pl. LIV is by far the most regular drawing of this design that we have found, which is not surprising as we have undoubted proof that it was first set out by means of a pointed tool whose marks are still to be seen. A number of vertical lines were first drawn dividing the surface of the jar into more or less equal panels; there are three of these lines on the sherd at distances of 2·69 and 2·58 ins. apart. With their centres on these lines, intersecting circles were scratched, apparently with a pair of dividers. There are no horizontal lines, as all that was necessary to set out the pattern was to mark off the centres of the circles on the vertical lines. By bisecting the distances between them, the levels of the centres of the circles to be placed between the lines were easily fixed. That the instrument used to scratch the circles was not a templet is proved by there being slight differences in the diameters of the circles; the instrument was probably somewhat loose at the joints. The diameters measured are:—2·2, 2·25, 2·35 and 2·5 ins., giving an average length of 2·33 ins.

The jar-painter did not always follow his guide-marks correctly. They should, of course, have been concealed beneath the paint, for merely retouching the red slip—an unsatisfactory procedure in many ways—would hardly have hidden them. The black paint used was opaque and good, and it was applied in a sufficiently fluid state to adhere well to the slip; but in a favourable light some of

[1] This circle motif is also found in shell inlay and on other objects than pottery (Pls. CXL, 38, 42, 46; CXLI, 9, 10), but without any spots or dashes; these were only added when the design was used for the ornamentation of pottery. A very similar design is also known in Crete where it is dated to the M. M. III period; Evans, *Palace of Minos*, vol. I, pl. V. Petrie has pointed out that it occurs at Ur about 3,500 B. C.; *Decorative Patterns of the Ancient World*, pl. XXIII, V, 2. The same device in a double border appears on a golden vase in the Astrabād Treasure, Rostovtzeff, *Journ. Eg. Arch.*, vol. VI, pl. III, fig. 3. It also decorates some very early pottery from Syria; Oppenheim, *Tell Halaf*, p. 296, fig. 1. It appears, of course, on the pottery of Balūchistān. Circular holes quartered by this four-petalled design in the centre are sometimes cut in the doors of Indian temples of to-day to allow visitors to catch a glimpse of the god within without being able to harm it by evil glances; Abbott, *Keys of Power*, pp. 141, 142, fig. 73. The design is evidently a specific against the evil-eye.

the more deeply scratched lines can be seen even where covered by the paint. The decoration of this jar should probably be regarded as unfinished, as certain usual details such as the strokes in the centres of the petal are lacking.

Though I have not seen this preliminary setting-out of the pattern on any other potsherd or jar, I have no doubt that for the more severe geometrical designs on the better finished ware this method was largely employed. Nor have I been able to ascertain whether the patterns were ever first outlined in this way on the ancient potteries of other countries, though such might quite well have been the case with some of the later geometrical ware. It is surprising to find that an instrument was actually used for this purpose in the Indus Valley as early as 2,500 B. C.

This design, which might also be described as made up of a number of linked four-petalled devices, has also been found on pottery from Tell Zeidan in Upper Mesopotamia, dated by Albright to 3,500 B. C.[1] A very similar geometric decoration occurs on a very early cylinder seal from Susa,[2] and it remained in use down to Sassanian times in Mesopotamia, for it was recently found by Watelin carved in gypsum plaster in a palace of that date at Kish.[3] Single four-petalled rosettes are, however, uncommon. A good example is seen on an archaic seal from Susa,[4] and a few cases from Mesopotamia and Cappadocia have been collected by Sir Flinders Petrie.[5] Some of them are singularly like the Mohenjo-daro examples, even to the dashes in the interiors of the petals. This four-petalled device has, however, not yet been found singly on the pottery of Mohenjo-daro, though it occurs in continuous designs, without as well as with the original circles, and also enclosed in square compartments.[6]

No. 19 in Pl. LXX is an elaborate rendering of this motif, in which the cross pattern tends to become more prominent than the circles. Though this sherd was found at the level −17·3 ft., the same design has also been found on a sherd from a higher level.[7]

Scale Patterns.—The scale pattern in Pls. LXIX, 13, 15; LXX, 33, 34, either alone or with additions, was also favoured as a decoration on the painted jars. It might equally well have been derived from quite a number of natural objects, such as the bracts of a bud, feathers, or even the scales of a reptile. It is from an artistic point of view very monotonous when spread over a large surface, as it sometimes is.

As would be expected from its simplicity, this design is known elsewhere; in fact, it was so much used in ancient times that it is sufficient to say that it is known in Nubia, Egypt, Crete and Greece, either painted on pottery, or carved or painted on other materials. In its simple form (Pl. LXX, 33, 34), which seems to

[1] *Man*, Mar., 1926, pl. C, fig. 1.

[2] Delaporte, *Cat. des Cylindres Orientaux*, t. I, pl. 18, fig. 17.

[3] *Illust. Lon. News*, Feb. 14, 1931, p. 261.

[4] Delaporte, t. I, pl. 18, fig. 20.

[5] *Decorative Patterns of the Ancient World*, pl. XXV. A pattern of four intersecting circles is also known in the Minoan signary; Evans, *Palace of Minos*, I, p. 282.

[6] *Mohenjo-daro and the Indus Civilization*, pl. XCI, 9–11.

[7] *Ibid*, pl. XCI, 7.

have been preferred in the countries mentioned, it is comparatively rare at Mohenjo-daro, where as a rule there is a spot or stroke[1] in each scale, or even a smaller scale with a dot inside (Pl. LXIX, 13).[2]

Rope Pattern (?).—The narrow border at the base of the neck of the painted jar in Pl. LVIII, 7 (see also Pl. LXX, 35) which is made up of a series of overlapping tongues or scales is comparable with the similar pattern—but without the spots—incised on several large store vessels of M. M. IIIb. date at Knossos.[3] Sir Arthur Evans regards this Cretan border as a survival of a rope-pattern, and it is possible that although the linked crescentic lines are not quite so regular, a rope-pattern is also represented on both the jar and sherd from Mohenjo-daro. Impressed rope-patterns are very common on the storage jars of early Sumer, but are never found at the Indus site. If, then, this painted border can be accepted as a survival of such a mode of decoration, it would be particularly interesting.

The combination of the two varieties of border at the left of sherd No. 16 in Pl. LXIX is new to us. I have not been able to find its like either on the material from Mohenjo-daro or elsewhere, though, used separately, each border is frequently seen. The bands with circles in them differ slightly from the usual version of this border in that the circles are slightly elongated, though this may be quite accidental[4] and due merely to unequal spacing.

The pattern on sherd 17 in Pl. LXIX is very rarely found ; in fact, only one other example of it is known,[5] and that is much more carefully executed and includes motifs that seem to represent pottery vessels. As would be expected, this border is not found on any other ancient ware, nor does it occur on any of the pottery of Balūchistān.[6]

In the design on sherd 18 in Pl. LXIX, there are bands of cross-hatching and roundels forming a border not unlike that on No. 16 in the same plate, save that each roundel was intended to contain what I regard as a solar device.[7] On the lower part of the sherd are what may be festoons, the vacant spaces between being roughly filled in with serpentine strokes. That the drawing on this sherd was very hurriedly done is shown by the careless way in which the hatching of the middle band was executed and by the degradation of the roundels from the left towards the right where they become a group of quite indefinite marks. This particular form of solar sign is often seen on the wares of Mohenjo-daro,[8]

[1] *Mohenjo-daro and the Indus Civilization*, fig. 32.

[2] This latter variety of the scale-pattern is seen as pieces of shell inlay found in a previous season which perhaps once adorned a wooden box ; *Mohenjo-daro and the Indus Civilization*, pl. XCI, 32. For an interesting comparison with Sumer, note the pieces of crystal inlay and the design cut on a steatite bowl from Ur. These are dated to c. 2,250 B. C. and are now in the British Museum.

[3] Evans, *Palace of Minos*, II, p. 418, fig. 241 (a).

[4] *Mohenjo-daro and the Indus Civilization*, pl. XCI, 26, 27, 31.

[5] *Op. cit.*, pls. LXXXVII, 4 ; XC, 23.

[6] It is known, however, at Harappā : *Ann. Rep. Arch. Surv. Ind.* (1927-8), pl. XXXV, g.

[7] This device has been likened to an eye, but I am strongly of opinion that it is a sun-motif, especially as the projecting points in most of the examples are continued all round the central circle. Eyes are, however, occasionally represented in this manner, as on an early sherd from Persia ; *Mém. Dél. en Perse*, t. XX, p. 124, fig. 29.

[8] *Mohenjo-daro and the Indus Civilization*, pl. XCI, 13, 15, 16. The same motif also appears on some of the early pottery found by Sir Aurel Stein in Balūchistan ; *Mem. Arch. Surv. Ind.*, No. 48, pl. XV.

and it is also frequently found on Elamite pottery and on Grecian wares. A certain type of bead which is not uncommon at the site takes much the same form.[1]

The geometric design in Pl. LXIX, 20, is as rare at Mohenjo-daro as it is common on the ancient pottery of other countries. The design is undoubtedly derived from a woven material, either a textile or basket-work, and in view of its effectiveness and the ease with which it can be drawn it is remarkable that it was not more popular.

A narrow border of almost kidney-shaped motifs (Pl. LXIX, 21) was rarely used on the Indus pottery, though it is frequently seen on early wares of Sumer[2] and Elam.[3] Something very similar to it occurs on prehistoric ware from Egypt where, it has been suggested, the motif was perhaps a conventionalized representation of a flight of birds.[4] A variation of this sign to be seen on a sherd from Tépé Musyan strongly supports this last suggestion.[5] It is also to be seen impressed by means of a stamp on the base and sides of a cup of M. M. II date found at Knossos.[6]

The principal motif in No. 22 in Pl. LXIX (see also Pl. LXVIII, 12) would be unique on the pottery of Mohenjo-daro and elsewhere, had it not also been found on a painted sherd from the lowest levels of Jhukar, a mound about 25 miles distant from Mohenjo-daro. It is not unlike a Boeotian shield in shape, but this does not, of course, imply that at this very early period there was any connection between Greece and the Indus Valley. In shape also, it somewhat resembles the small clay inscribed amulets that are fairly common at Harappā, but unknown as yet at Mohenjo-daro.[7] The nearest approach to this particular motif that I have been able to find is a double-triangle pattern from Damba-kot in southern Balūchistān, which is decorated with a pair of spirals at each end.[8] These curious spirals at the ends of the outer curves are the more remarkable that no form of spiral has hitherto been seen on the painted ware of Mohenjo-daro.[9] We have as yet found no shields at Mohenjo-daro, but it is not impossible that a shield made of some kind of wicker-work is here represented, though the spirals and the fringes on the outer curves seem incongruous as parts of a shield.[10]

[1] Pls. CXXXVI, 81; CXXXVII, 57–9.

[2] Hall and Woolley, *Al 'Ubaid*, pl. XVIII, fig. 1548. Herzfeld, *Samarra*, V, pl. XV, fig. 43. Campbell Thompson, *Archæologia*, vol. 70, fig. 10.

[3] *Mém. Dél. en Perse*, t. VIII, p. 94, fig. 135; t. XIII, pl. XXVII, fig. 4, etc. *Cf.* the *godambi* motif which is said to be the impression of a foot and a specific against the evil-eye; Abbott, *Keys of Power*, p. 146, figs. 100, 101.

[4] Petrie, *Prehistoric Egypt*, p. 21.

[5] *Mém. Dél. en Perse*, t. VIII, p. 94; fig. 135, third fragment.

[6] Evans, *Palace of Minos*, I, p. 244, fig. 184, a.

[7] *Ann. Rep. Arch. Surv. Ind.* (1924-5), pl. XXVIII, fig. 9.

[8] *Mohenjo-daro and the Indus Civilization*, pl. XCIII, 9, 10. These sherds are now in the Indian Museum, Calcutta, and are regarded as of later date than the Mohenjo-daro ware. For another and more definite example of the spiral on pottery from Balūchistān see Noetling, *Zeitschrift für, Ethnologie*, 1898, p. 469, fig. 42.

[9] Single spirals are also seen on two sherds found at Jhukar by Mr. Majumdar and dated by him to the time of the Indus Civilization. *Ann. Rep. Arch. Surv. Ind.* (1927-8), pl. XXIX, figs. 10 and 11.

[10] See ccclxxxix and cccxciv of Messrs. Smith and Gadd's list of signs where warriors are apparently holding shields. *Mohenjo-daro and the Indus Civilization*, pl. CXXIX.

On the left of No. 1 in Pl. LXVIII is a hatched rectangle with the four sides incurved, a frequently found motif which I have already compared with a stretched hide.[1] Next to this are two hatched triangles joined together at their apices, a motif which is also fairly common on the ware of Mohenjo-daro, and still more so on other painted and incised wares of the Near and Middle East. In the panel on the right of the sherd are four hatched hemispheres, two above and two below, with their curved sides towards the middle. The extreme curvature of this sherd made it difficult to photograph, so that the narrower border above the band just described is not very clear; in it are exactly the same kidney-shaped devices as on the upper part of the sherd in Pl. LXIX, 21.

The use of hemispheres to fill up the spaces in a series of linked triangles appears to be more common in the lower than in the upper levels (Pl. LXX, 7, 40, 41). The broad border thus formed is decidedly ornamental.[2]

A device practically identical with that in Pl. LXVIII, 7, but even more insect-like in appearance, has already been published.[3] This motif seems undoubtedly to be a copy of a very similar motif that frequently appears on the pottery of Elam,[4] in fact, it only differs from it in that the four projections were drawn on the outside of each arm of the device in Elam, whereas at Mohenjo-daro they are on the outside of one arm and the inside of the other. The reason for this variation is possibly unfamiliarity with the Elamite motif, since on the pottery of Nal the device was reproduced exactly as in Elam.[5] It has been suggested that this motif is a degraded representation of the antelope; but it seems more likely to have been derived from a crane in flight—in some cases an eagle—forms which appear on the pottery of Susa I, but with the outstretched wings alone remaining of the original motif. The process of degradation from the representation of the bird to its wings only is clearly seen on the bowls of Susa.[6] It seems evident that the potters of Mohenjo-daro had only the degraded form to copy and that they had no conception of its original meaning, whereas the painter of the bowl from Nal copied the Elamite device almost exactly—a point of especial interest in view of the resemblance in shape of some of the Nal wares to the early pottery of Susa.

The basket-like objects that appear to be hanging from supports on either side of the sherd No. 24 in Pl. LXVIII are new to us, unless the single motif above the comb[7] on a practically perfect jar found prior to 1927 is the same.[8] This device can hardly represent festoons, though some form of adornment may be intended. If this be so, this ornament together with the comb and the roundels above may be objects that were definitely associated in their use.

[1] *Mohenjo-daro and the Indus Civilization*, pl. XCI, 1–6.

[2] *Mohenjo-daro and the Indus Civilization*, pl. XCI, 18.

[3] *Op. cit.*, pl. XC, 21.

[4] *Mém. Dél. en Perse*, t. VIII. p. 95, fig. 138; p. 126, fig. 234; t. XIII, pls. XXI, 9; XXII, 1, 5.

[5] Hargreaves, *Mem. Arch. Surv. Ind.*, 35, pl. XVIII, fig. 12.

[6] *Mém Dél. en Perse*, t. XIII, pls. XLII, fig. 2; XVIII, fig. 5.

[7] Some doubt has been expressed whether this ornament does represent a comb. On comparison, however, with an ivory comb found at Harappā, the similarity between the two is obvious; *Ann. Rep. Arch. Surv. Ind.* (1927-8), pl. XXXIV (d).

[8] *Mohenjo-daro and the Indus Civilization*, pl. LXXXVII, 6; XCI, 13.

Unusual Design.

Vertical zig-zag lines or chevrons as a decoration for pottery are known only on the sherd, Pl. LXX, 15, which was found, 21·8 ft. below datum. These chevrons convey the impression that the jar was fluted, which was not the case.

On the sherd No. 38 in Pl. LXX is painted a most uncommon pattern of lines and dashes running in various directions; seemingly, the decorator of this dish or bowl wanted to cover the space to be painted as quickly as possible and gave no real thought to any design.

The narrow, elongated triangles (?) on sherd No. 34 in the same plate are the only examples that have been found.

Painted Jars—whole or nearly so.

No. 2 in Pl. LIV (see also Pl. LVI, 36), though badly broken, still stands 5·65 ins. high on a flat base. It is very coarse, light red ware, as much as 0·58 in. thick in parts, with a slight admixture of mica and dirty grit, and a very little lime. The surface of the lower part of the vessel is very dragged and had been slightly trimmed. This jar is decorated with a thin, purplish-black paint on a pink slip, but owing to scaling the pattern of simple hatched hemispheres with a very geometric tree between them can only be made out on one side of it. This mode of representation of a tree is rarely seen on the pottery of Mohenjo-daro, though it frequently occurs in Sumer.

No. 5 in Pl. LIV (see also Pl. LVIII, 7), which is now 19·75 ins. high is light red ware containing a little mica and sand. It is decorated in dense black paint on a very roughly applied, dark red slip, which was once slightly polished. The main design is fairly regular, but not nearly so carefully done as on the sherd No. 6 in the same plate. On the other hand, there is a line in the middle of each petal and a spot in each space between. Above this decoration there is a narrow band of alternating spots and linked up, curved lines; at the top is the tree pattern so often seen on the painted ware of Mohenjo-daro, and simple looped hatched bands.

Vessels of this particular shape were always more or less carefully painted and were probably valued household possessions.[1] Their large size[2] suggests that they were used as storage jars, but for what we do not yet know; the comparatively narrow mouth would hardly allow of the use of an ordinary dipper, and yet the weight of one of these jars when filled would have prevented its contents being poured out easily. The very narrow base must have necessitated such a jar being supported on a stand.

Plate LXX.—No. 6 is 3·34 ins. high, with a mouth only 0·35 in. in diameter. It is covered with a red wash and a simple hatched design in black decorates its shoulder. The neck and rim are ornamented with thin black lines.

No. 7 (see also Pl. LXV, 15). Height 5·93 ins. This jar which is practically complete has a thick cream slip on base, body and shoulder; the neck and rim are coloured red. A very effective design painted on the cream slip in purplish-black paint is carried round the jar without the interpolation of other motifs.

[1] For other examples, see *Mohenjo-daro and the Indus Civilization*, pl. LXXXVII, 4, 5.

[2] Some are as much as 2 ft. 6 ins. high.

Polychrome Pottery (*Pls. LIV, 1; LXII, 39; LXVIII, 9, 10, 15; LXIX, 1–3, 6; LXX, 8–12*).

In the line illustrations (Pl. LXIX) of the few pieces of polychrome ware found in the upper levels in recent seasons, the colours are denoted as follows:—white by white, black by black, yellow by dots, and red by simple hatching.

The polychrome ware of Mohenjo-daro is quite distinctive, resembling the wares of Sumer and Elam neither in the designs used nor the mode of decoration. From its scarcity, it almost seems that painting in polychrome was a decaying craft, especially as some of the few pieces that we have found were not particularly carefully painted. Only one complete vase has been unearthed in the course of the work dealt with in this book; and the two vases previously found are by no means perfect. As far as we can gather from this very limited material, only dishes and vases of a special shape were decorated in polychrome.

With but three exceptions, *i.e.*, the pieces illustrated in Pl. LXVIII, 9, with no slip, and in Pl. LXX, 9, 12, a yellow slip, the colours were applied on a preliminary thick, white coat. In two cases (Pl. LXVIII, 9, 10), green was included amongst the colours used, possibly to serve as a ground for the other colours, but of this we cannot be certain as the sherds are very small. It is possible that green was used on others of the polychrome sherds, for it is always in a very powdery condition when unearthed and may have already disappeared. This green paint has been analyzed by the Archæological Chemist in India and pronounced to be *terre-verte*. It is quite possible that it was applied after baking, as were the colours of the Nal ware with the exception of the sepia outlines.

In addition to green, black and red were invariably used, and occasionally bright yellow, the latter as a slip in Pl. LXX, 12, and together with a white slip in Pl. LXX, 9. The black is sometimes thin and washy-looking; and so is the red, but the latter is none the less very bright. Both the red and the yellow appear to be earth colours; the black may be a soot of some kind.

Plate LXVIII.—No. 9 is a small fragment of the rim of a vessel, edged with a plain band of green. Below is a row of the shield-like motifs, painted in the self-same colours, that are seen in Pl. LXIX, 2. Here, however, the colours, including the white, are applied to the light pink surface of the ware without the intervention of a slip.

The small sherds, Nos. 10 and 15, were found together and must have formed part of the same vessel. They are decorated with irregularly placed red trefoils with white borders on an apple-green ground. This latter paint is, as usual, in a very powdery condition, and there are indications that the white borders were once outlined with black. It is interesting to see this trefoil motif appearing as a decoration on the polychrome pottery; it has not yet been found on the monochrome ware. We have reason to think that it was sacred; at all events, it was used, as in Sumer also, to decorate objects which seem to have had a ritual use. The trefoils on these sherds with their somewhat elongated lobes more closely resemble the pieces of faience inlay of M. M. III date found in the Long Gallery at Knossos[1] than do the other examples that we possess.[2] The red colouring of the lobes also suggests that this pattern is not derived from the clover leaf, for otherwise the

[1] Evans, *Palace of Minos*, I, p. 451, fig. 324.

[2] *Mohenjo-daro and the Indus Civilization*, pls. CIV, 26; CVII, 35; CXXXVI, 57, 66.

painter of the jar would surely have painted them green. That red was the recognised colour for this motif is clear from the fact that in no instance has a trefoil of any other colour been found at Mohenjo-daro.

Plate LXIX.—Nos. 1 and 3 are the two faces of a sherd which is part of the edge of a shallow dish that was painted on both sides with light yellow ochre, a faint black and bright red upon a white slip. This sherd is thin, light pink, and gritty in appearance, though it seems to contain neither lime nor mica.

The shield-like objects, No. 2 of this plate, which were painted in red on part of a jar (Pl. LVI, 27) have a white border outlined with black. It is possible that this white border was originally overlaid with green, though no trace of this colour remains. This fragment is very similar ware to No. 1.

No. 6 is an interesting, though very small sherd. The design in the upper register perhaps represents a plant in a somewhat conventional manner with a red spot in the middle of each leaf. Below, bright red lines alternate with black forming a series of chequers. From the curvature of this fragment the painted surface seems to be the inside of a shallow dish which was not decorated outside.

No. 1 in Pl. LIV (see also Pl. LVI, 4) is a curious jar of *Type J* (see p. 195). 5·29 ins. high, with a very narrow mouth, only 0·35 in. in diameter. Made of a pink paste, the neck and rim were painted black, and the body and even the underside of the base were coated with a thick white slip, on which a petal design was painted in black, red, and possibly green paint. Owing to the action of salt, however, practically nothing of the design now remains, save inside the foot where it was more or less protected. Judging from its very small mouth, this vessel was intended to contain a fine powder, possibly a pigment such as antimony; the neck and rim may, indeed, have been coloured black to prevent the ugly stains of the kohl showing, as would have been the case if the petal design had been carried right up to the top of the jar.[1] From the style of ornamentation, which is now well known at Mohenjo-daro,[2] this little vase was not an importation; nor has anything similar to it in shape yet been found in either Elam or Sumer. From the evidence of a fragment found prior to 1927,[3] it appears that jars with the same narrow mouth and trumpet-like base were sometimes made in faience. I am inclined to think that this type of jar was made in more than one piece, but as this example is not broken we have no proof of this.

No. 39 in Pl. LXII is a painted vase, now some 2·9 ins. high, of which the whole of the upper part was washed over with red ochre and then decorated with broad horizontal bands of white. In the centre of each white band, a narrower band of black was painted, and the vertical strokes between the black bands are also black. This vessel was made either to stand or to be suspended, for there are three holes pierced in its rim.

No. 6 in Pl. LXVII combines three unusual features in one sherd; namely, polychrome colouring, an incised pattern, and perforations—on the right-hand side the edge of a triangular perforation is clearly seen. The colours used were

[1] This black is too regularly applied to have been actually due to kohl stains. Nor are there now any stains apparent on the interior of the vessel.

[2] *Mohenjo-daro and the Indus Civilization*, pl. LXXXVII, fig. 2.

[3] *Op. cit.*, pl. CLVII, 53.

red, black, green and white, the upper part of the sherd being black, the fusils in the border being red on white, and green below the border. This sherd is more fully described in the earlier section on incised ware (p. 184).

Plate LXX.—No. 8 is decorated on both sides, the design on the reverse being simple circles in black with red interiors on a white ground. The obverse shows a series of white bead motifs, outlined in black and ornamented with red lines. Possibly this motif represents a string of etched carnelian beads.

No. 9 comes from a very early stratum, 32 ft. below datum, and was found with four other fragments bearing the same design, all five being part of the rim, apparently, of a tall jar. This rim was ornamented on a yellow ground with a white petal design outlined in black, with a red stroke in the centre of each petal. Below, white roundels with red centres and outlined with black were painted on a white ground.

On No. 10, a fish is very roughly painted in black on a white ground. In the centre of each of the beads in the border below is a red spot, and the ornament just above the fish also has a red centre.

On both sides of No. 11, two colours only, black and red, were used on a thick white slip; the black for the outlines and the red to fill in the somewhat complicated design. The reverse side of this sherd was too much rubbed to be worthy of reproduction.

No. 12 is also in a very bad state of preservation. What little can be discerned of the lower part of the design appears to be white roundels with red centres on a yellow ground. The upper portion is ornamented with groups of red and black parallel lines on a white ground.

Sherds 9, 11 and 12 were all found at low levels, the highest being 18·4 ft. below datum. Polychrome pottery seems, therefore, to have been made throughout the known history of Mohenjo-daro, though it was at all times somewhat rare.

TABULATION OF POTTERY.

PLAIN AND BANDED POTTERY. UPPER LEVELS.

LII		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
1	—	—	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	Stūpa		1	+15·7	SD. 2887
2	R	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	6	—	34	−1·4	„ 3211
3	G	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	Bet. Bls. 1 & 2			+6·0	„ 3112
4	AK	×	—	—	—	—	—	—	—	×	×	—	×	—	—	—	—	—	—	8	—	7	+2·7	„ 2748
5	AK	×	—	—	—	—	×	—	—	—	—	—	×	—	×	—	—	—	—	8	—	5	+4·7	„ 2746
6	AK	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	8	—	9	+1·4	„ 3135
7	AD	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	22	+7·0	„ 2939

PLAIN AND BANDED POTTERY. UPPER LEVELS.

LII		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
8	LA	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	6	—	13	−0·7	SD. 3227
9	B	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	1	—	61	+1·5	„ 3069
10	MA	×	—	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	6	—	30	−2·3	„ 3306
11	AA	—	—	—	×	×	—	—	—	—	—	—	—	×	—	—	—	—	—	6	—	8	−7·0	„ 3237
12	AK	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	6	—	14	−2·3	„ 3024
13	AK	×	—	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	6	—	27	−1·7	„ 3278
14	AC	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	6	—	12	−1·5	„ 3258
15	W	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	8	—	4	+4·3	„ 2870
16	W	×	—	—	—	×	×	—	—	—	—	—	×	—	—	—	—	—	—	8	—	4	+5·2	„ 2926
17	E	×	—	—	—	×	—	—	—	—	×	×	×	—	—	×	—	—	—	6	—	12	−1·1	„ 3213
18	P	×	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	6	—	12	−1·7	„ 3260
19	B	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	8	—	10	+2·6	„ 2857
20	B	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	12	−1·5	„ 3253
21	AE	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	8	—	3	−0·2	„ 2999
22	G	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	8	—	5	−1·9	„ 3099
23	F	×	—	—	—	—	—	×	—	×	—	—	—	—	—	—	—	—	—	6	—	30	+2·4	„ 3217
24	B	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	6	—	30	+2·4	„ 3060
25	C	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	6	—	30	+2·4	„ 3086
26	AE	×	—	—	—	—	—	—	—	—	×	×	×	—	—	—	—	—	—	6	—	30	+2·4	„ 3087
27	C	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	6	—	30	+2·4	„ 3216(*a*)
28	C	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	6	—	30	+2·4	„ 3216(*b*)
29	A	×	—	—	—	—	×	—	—	—	×	×	—	—	—	—	—	—	—	9	—	3	?	„ 3186
30	S	×	—	—	—	—	—	—	—	×	—	—	×	—	—	—	—	—	—	6	—	23	−1·8	„ 3301
31	S	—	—	—	×	×	—	—	—	—	—	—	×	—	—	—	—	—	—	6	—	13	−2·6	„ 3250
32	AI	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	6	—	23	+0·7	„ 3235
33	KA	×	—	—	—	×	—	—	—	—	—	—	×	×	—	—	—	—	—	6	—	23	+0·7	„ 3239
34	A	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	6	—	23	+0·7	„ 3236
35	H	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	6	—	23	+0·7	„ 3238
36	H	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	23	+0·7	„ 3240
37	T	×	—	—	—	—	×	—	—	—	×	—	×	—	×	—	—	—	—	6	—	19	−1·2	„ 3196
38	PA	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	6	—	19	−1·2	„ 3195

Plain and Banded Pottery. Upper Levels.

LII		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
39	AI	—	—	—	×	×	—	—	—	—	—	—	×	×	—	—	—	—	—	6	—	27	−2·1	SD. 3293
40	AI	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	6	—	27	−2·1	„ 3292
41	H	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	6	—	27	−2·1	„ 3294(*a*)
42	C	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	27	−2·1	„ 3294(*b*)
43	DA	×	—	—	—	—	—	—	—	—	×	—	—	×	—	—	—	—	—	6	—	28	+2·8	„ 3193
LIII																								
1	KA	—	—	—	×	×	—	—	—	—	×	—	—	—	—	—	—	—	—	6	—	15	−3·5	„ 3233
2	AI	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	×	6	—	15	−3·5	„ 3234
3	Z	×	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	—	6	—	23	+0·9	„ 3230
4	G	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	23	+0·9	„ 3229
5	T	×	—	—	—	—	×	—	—	—	—	—	×	—	—	—	×	—	—	6	—	23	+0·9	„ 3228
6	V	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	23	+0·9	„ 3232
7	R	×	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	—	6	—	13	−1·1	„ 3245
8	AK	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	6	—	13	−1·1	„ 3246
9	AO	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	6	—	13	−1·1	„ 3247
10	AK	×	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	—	—	6	—	13	−1·1	„ 3248
11	C	—	—	—	×	×	—	—	—	—	—	×	×	—	—	—	—	—	—	6	—	23	−0·2	„ 3263(*a*)
12	C	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	6	—	23	−0·2	„ 3263(*b*)
13	C	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	6	—	23	−0·2	„ 3263(*c*)
14	C	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	6	—	23	−0·2	„ 3263(*d*)
15	B	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	6	—	23	−0·2	„ 3266
16	U	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	23	−0·2	„ 3267
17	C	×	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	—	8	—	5	−1·7	„ 3093
18	G	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	8	—	5	−1·7	„ 3094
19	AE	·×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	6	—	30	+1·3	„ 3091
20	C	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	6	—	30	+1·3	„ 3090
21	Y	×	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	—	—	6	—	23	−0·2	„ 3269
22	DA	×	—	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	6	—	23	−0·2	„ 3268
23	C	—	—	—	×	×	—	—	—	—	—	×	×	—	—	—	—	—	—	6	—	23	−0·2	„ 3263(*e*)
24	C	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	6	—	23	−0·2	„ 3263(*f*)
25	C	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	6	—	23	−0·2	„ 3263(*g*)

PLAIN AND BANDED POTTERY. UPPER LEVELS.

LIII		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
26	C	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	23	−0·2	SD. 3263(h)
27	C	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	6	—	23	−0·2	" 3263(i)
28	D	×	—	—	—	—	×	—	—	—	×	—	×	—	—	—	—	—	—	6	—	23	−0·2	" 3264
29	U	×	—	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	6	—	30	−2·3	" 3326(a)
30	U	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	6	—	30	−2·3	" 3326(b)
31	W	×	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	6	—	30	−2·3	" 3323(d)
32	G	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	6	—	30	−2·3	" 3323(b)
33	D	×	—	—	—	—	×	—	—	—	×	×	×	—	—	—	—	—	—	6	—	30	−2·3	" 3322
34	KA	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	6	—	30	−2·6	" 3320
35	U	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	6	—	30	−2·3	" 3326(c)
36	AR	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	6	—	30	−2·3	" 3325
37	AK	×	—	—	—	—	×	—	—	—	×	—	×	—	×	—	—	—	—	6	—	30	−2·3	" 3327
38	C	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	30	−2·6	" 3321(a)
39	H	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	30	−2·6	" 3321(b)
40	C	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	6	—	13	−1·3	" 3249(a)
41	C	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	6	—	13	−1·3	" 3249(b)
42	C	×	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	6	—	13	−1·1	" 3243
43	H	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	13	−1·1	" 3244
44	C	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	12	−3·7	" 3285
45	H	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	6	—	12	−3·7	" 3287
46	AR	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	×	6	—	12	−3·7	" 3286
47	KA	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	23	−2·3	" 3311
48	AK	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	6	—	23	−2·3	" 3312
49	AK	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	6	—	23	−2·3	" 3308
50	AK	×	—	—	—	×	×	—	—	—	—	×	—	—	—	—	—	—	—	6	—	23	−2·3	" 3313
51	C	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	23	−2·3	" 3310
52	B	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	6	—	23	−2·3	" 3309
53	AE	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	6	—	30	−2·3	" 3336
54	A	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	6	—	30	−2·2	" 3335(a)
55	AO	×	—	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	6	—	30	−2·3	" 3335(b)
56	AS	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	6	—	30	−2·3	" 3335(c)

Incised and Painted Pottery. Upper Levels.

LIV	Slips.					Dégraissants.				Paints.					Dimensions (inches).				Locus.			Level (ft.).	Field No.
Plate.	Light-red.	Dark Red.	Cream or White.	Green.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Red.	Green.	Yellow.	White.	Height.	Length.	Breadth.	Thickness.	Block.	House.	Room.		
1	—	—	×	—	—	—	—	—	—	×	×	?	—	—	5·29	—	—	Thin	6A	—	43	-8·8	DK. 12485
2	—	—	—	—	×	—	×	—	—	×	—	—	—	—	5·65	—	—	Thin	6A	—	40	-5·6	„ 10309
5	—	×	—	—	—	×	×	—	—	×	—	—	—	—	19·7	—	—	Thick	9	X	55	-9·1	„ 12725
6	×	—	—	—	—	—	×	×	—	×	—	—	—	—	—	7·10	4·2	0·25	22	I	4	-7·2	„ 11742
19	—	—	×	—	—	—	×	×	—	—	—	—	—	—	—	4·5	3·0	0·27	Bet. Bls. 11 & 12A			-9·7	„ 8146

Plain and Banded Pottery.

LV		Pastes.				Slips.					Dégraissants.				Paints.					Locus.			Level (ft.).	Field No.
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream or White.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.		
1	A	×	—	—	—	×	—	—	—	—	×	×	×	—	—	—	—	—	—	9	IV	7	-6·5	DK. 3426
2	A	×	—	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	1A	—	8	-10·5	„ 5185
3	A	×	—	—	—	—	—	—	—	—	×	—	×	—	—	—	—	—	—	9	IV	7	-4·6	„ 3451
4	A	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	1	I	18	-5·5	„ 4401
5	A	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	×	—	—	1	VI	53	-11·6	„ 5480
6	A	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	8	II	17	-7·3	„ 7901
7	A	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	I	9	-5·8	„ 3640
8	A	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	19	—	6	-6·8	„ 12987
9	A	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	21	IV	29	-8·8	„ 11325
10	A	×	—	—	—	—	×	—	—	—	×	—	×	×	—	—	—	—	—	9	II	9	-7·4	„ 3837
11	A	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	III	25	-3·3	„ 10519
12	B	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	7	I	19	-9·9	„ 4841
13	B	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	III	30	-4·7	„ 10898
14	B	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	9	VI	34	-7·7	„ 7650
15	B	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	12	V	96	-9·4	„ 4767
16	B	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	4	—	10	-6·0	„ 3372
17	B	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	1	III	16	-10·8	„ 4465
18	B	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	8	II	20	-4·8	„ 4154

PLAIN AND BANDED POTTERY. UPPER LEVELS.

LV		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream or White.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
19	C	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	9	VIII	21	−4·4	DK. 3440
20	C	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	Bet. Bls. 5 & 7 (VI)			−9·6	„ 7575
21	C	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	7	III	39	−4·4	„ 3367
22	C	×	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	9	VIII	10	−3·2	„ 3358
23	D	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	3	V	10	−11·7	„ 5158
24	E	×	—	—	—	×	—	—	—	—	×	×	×	—	—	—	—	—	×	9	X	81	−6·5	„ 12025
25	E	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	×	9A	VIII	46	−9·5	„ 12640
26	F	—	×	—	—	—	—	×	—	×	—	×	—	—	—	×	—	—	×	9	VI	32	−6·3	„ 7612
27	F	×	—	—	—	×	×	—	—	—	—	×	×	—	—	—	—	—	×	1	VII	35	−10·5	„ 5358
28	F	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	×	15	I	3	−9·3	„ 11409
29	E	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	×	9	I	23	−9·1	„ 8123
30	E	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	×	9	IV	7	−7·1	„ 8180
31	G	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	28	I	2	−5·9	„ 12151
32	G	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	Central St.			−8·6	„ 11399
33	G	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	7	III	44	−6·7	„ 4074
34	G	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	VII	51	−8·1	„ 4998
35	G	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	6	III	21	−9·0	„ 4032
36	G	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	Bet. Bls. 1 (IV) & 10			−9·0	„ 5105
37	G	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	12	I	2	−6·6	„ 4681
38	G	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	Bet. Bls. 11 & 12A			−11·1	„ 4838
39	G	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	1	III	2	−8·8	„ 4561
40	G	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	1	III	16	−9·4	„ 4446
41	G	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	9	IV	7	−5·9	„ 3453
LVI																								
1	H	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	7	VII	58	−4·5	„ 3604
2	H	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	9	III	30	−5·6	„ 3784
3	I	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	×	8	II	23	−10·3	„ 8781
4	J	—	×	—	—	×	—	—	—	—	—	—	—	—	×	—	×	—	—	6A	—	43	−8·8	„ 12485
5	J	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	8	III	30	−8·8	„ 12407
6	J	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	23	II	10	−7·8	„ 11757
7	J	×	—	—	—	—	—	×	—	—	—	×	—	—	—	—	×	—	×	9	VIII	20	−6·9	„ 8048

PLAIN AND BANDED POTTERY. UPPER LEVELS.

LVI		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
8	J	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	16	II	11	–6·1	DK. 11018
9	J	×	—	—	—	—	—	×	—	—	—	×	×	—	—	—	—	—	—	9	VIII	20	–6·9	„ 8053
10	L	×	—	—	—	×	×	×	—	—	—	—	—	—	—	—	—	—	—	11	III	29	–11·4	„ 5502
11	L	×	—	—	—	—	×	—	—	—	—	×	—	—	—	×	—	—	×	23	I	2	–9·0	„ 11921
12	L	×	—	—	—	—	×	—	—	—	—	×	×	—	×	—	—	—	—	6A	—	35	–9·3	„ 12482
13	L	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	18	—	7	–5·7	„ 10827
14	M	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	9	III	35	–3·7	„ 3382
15	M	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	9	VI	78	–6·7	„ 5652
16	MA	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	—	21	IV	29	–6·9	„ 11081
17	M	×	—	—	—	×	×	—	—	—	—	—	×	—	—	—	—	—	—	13	III	19	–5·9	„ 11643
18	MA	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	—	9	X	81	–6·5	„ 12015
19	N	×	—	—	—	×	—	—	—	—	×	—	×	—	—	—	—	—	×	4	—	3	–7·0	„ 3476
20	O	×	—	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	9	I	27	–3·5	„ 3795
21	AK	×	—	—	—	—	—	—	—	×	—	—	×	—	×	—	—	—	—	9	I	27	–5·4	„ 3815
22	R	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	7	II	89	–9·6	„ 3656
23	R	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	9	II	11	–7·3	„ 3893
24	R	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	7	III	44	–5·5	„ 3363
25	R	×	—	—	—	—	×	—	—	—	×	—	×	×	—	—	—	—	—	9	VI	32	–10·0	„ 7104
26	R	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	7	I	9	–5·6	„ 3653
27	R	×	—	—	—	×	—	—	—	—	—	—	—	—	×	—	×	—	—	9	VI	78	–9·8	„ 5435
28	S	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	1	VI	40	–9·8	„ 5620
29	SA	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	×	8	III	37	–10·9	„ 12746
30	S	×	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	9	IV	7	–6·4	„ 3429
31	T	×	—	—	—	×	×	—	—	—	—	×	×	—	—	—	—	—	—	12A	II	22	–9·3	„ 5254
32	MA	×	—	—	—	—	—	—	—	—	×	×	×	—	—	—	—	—	—	12A	II	21	–8·0	„ 4743
33	DA	×	—	—	—	—	×	×	—	—	—	—	×	—	—	—	—	—	—	Bet. Bls. 6A & 8A			–9·9	„ 11424
34	MA	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	14	IV	29	–5·5	„ 11518
35	T	×	—	—	—	—	—	—	—	—	×	×	×	—	—	—	—	—	×	7	IV	72	–7·7	„ 3425
36	AJ	×	—	—	—	—	—	—	—	×	—	—	×	×	—	×	—	—	×	6A	—	40	–5·6	„ 10309
37	U	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	1	II	6	–10·5	„ 5426
38	U	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	Bet. Bls. 1(III) & 3			–7·3	„ 3802

PLAIN AND BANDED POTTERY. UPPER LEVELS.

LVI		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
39	U	—	—	—	×	×	×	—	—	—	—	×	×	—	—	—	—	—	—	10	II	25	−7·9	DK. 4827
40	U	—	—	×	—	—	—	—	×	—	—	—	×	—	—	—	—	—	—	6	I	5	−8·9	„ 3667
41	UA	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	11	III	29	−10·9	„ 4911
42	V	—	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	8	III	31	−8·1	„ 11820
43	U	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	Surface			−1·6	„ 10406
44	V	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	7	VII	58	−4·5	„ 3603
45	U	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	8	III	31	−11·4	„ 12791
46	V	×	—	—	—	×	—	—	—	—	×	×	×	—	—	—	—	—	—	9	VIII	15	−4·7	„ 3434
47	V	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	First St. (36)			−6·8	„ 10336
48	X	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	1	I	14	−10·4	„ 5266
49	V	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	9	II	11	−7·3	„ 3933
50	V	×	—	—	—	—	—	—	—	—	—	×	×	×	—	—	—	—	—	9	IV	7	−6·4	„ 3430
51	V	×	—	—	—	—	—	—	—	—	×	—	×	—	—	—	—	—	—	2	I	3	−10·2	„ 4419
52	UA	×	—	—	—	×	—	—	—	—	×	×	×	—	—	—	—	—	—	9	IX	68	−9·7	„ 12623
53	V	—	×	—	—	—	×	—	—	—	—	—	×	—	—	×	—	—	—	3	VI	31	−10·6	„ 5299
54	W	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	10	II	26	−11·1	„ 7307
55	W	—	—	—	×	—	—	—	—	×	×	×	×	—	—	—	—	—	—	9	I	40	−8·9	„ 12271
56	AA	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	9	IV	4	−6·2	„ 4113
LVII																								
1	X	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	9	I	37	−11·6	„ 12764
2	X	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	9	VIII	21	−4·4	„ 3441
3	X	×	—	—	—	—	—	—	—	×	—	—	×	—	—	—	—	—	—	7	III	52	−11·9	„ 5896
4	X	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	Bet. Bls. 4 & 7			−9·5	„ 3305
5	X	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	First St. (24)			−6·9	„ 10525
6	X	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	3	V	11	−8·7	„ 3684
7	X	×	—	—	—	—	—	—	—	—	—	×	×	×	—	—	—	—	—	14	I	6	−7·5	„ 11671
8	X	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	23	II	13	−10·7	„ 12209
9	X	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	9	IX	65	−6·1	„ 10639
10	X	×	—	—	—	—	×	—	—	—	—	×	×	—	×	—	—	—	—	12	I	1	−7·7	„ 4701
11	X	×	—	—	—	—	—	—	—	×	—	×	×	—	—	×	—	—	—	6	I	2	−11·7	„ 4172
12	MA	×	—	—	—	—	×	—	—	—	—	×	—	—	×	—	—	—	—	1	VI	54	−6·2	„ 5323

PLAIN AND BANDED POTTERY. UPPER LEVELS.

LVII		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
13	MA	×	—	—	—	—	×	—	—	—	—	×	×	—	×	—	—	—	—	1	VII	39	-10·3	DK. 5259
14	AC	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	20	I	5	-5·5	,, 12980
15	AC	×	—	—	—	—	—	—	—	×	—	×	×	—	—	—	—	—	×	20	II	19	-6·5	,, 12708
16	AE	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	V	78	-8·0	,, 3555
17	Z	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	Bet. Bls. 12 & 12A			-9·5	,, 5071
18	AD	×	—	—	—	—	×	—	—	—	—	×	—	—	—	×	—	—	—	9	I	34	-11·5	,, 8532
19	AD	×	—	—	—	—	×	—	—	—	—	×	—	—	×	—	—	—	—	8	III	31	-7·9	,, 11193
20	AE	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	8A	—	41	-7·2	,, 12091
21	AE	×	—	—	—	×	×	—	—	—	—	—	—	—	—	—	—	—	—	8	II	21	-4·6	,, 10397
22	AF	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	Bet. Bls. 12 & 12A.			-7·1	,, 4792
23	AE	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	9	IX	68	-7·7	,, 12533
24	AE	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	×	12A	I	14	-8·2	,, 12061
25	AG	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	9	VI	36	-5·8	,, 3508
26	LA	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	21	IV	29	-8·6	,, 11542
27	AK	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	9A	VIII	50	-10·3	,, 13004
28	G	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	×	9	X	83	-8·2	,, 12251
29	E	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	×	9	X	83	-8·2	,, 12249
30	G	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	9	X	83	-8·2	,, 12252
31	A	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	×	—	—	9	X	83	-8·2	,, 12256
32	AI	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	8	II	21	-8·9	,, 8063
33	LA	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	1	VII	39	-6·3	,, 4686
34	AK	×	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	8	III	37	-10·7	,, 12752
37	LA	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	22	I	4	-5·8	,, 10976
39	AS	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	Bet. Bls. 16 (II) & 17			-5·7	,, 11095
40	AS	×	—	—	—	—	×	—	—	—	—	×	×	—	—	×	—	—	—	Central St.			-4·7	,, 10358
41	AS	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	17	III	21	-8·0	,, 12403
42	AS	×	—	—	—	—	—	×	—	—	—	×	×	—	—	—	—	—	—	20	I	3	-6·0	,, 12585
43	AS	×	—	—	—	—	×	—	—	—	×	×	—	—	×	—	—	—	—	9	XII	94	-10·1	,, 12773
LVIII																								
1	A	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	9	IV	7	-7·1	,, 8178
2	AF	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	×	7	V	64	-9·0	,, 7887

PLAIN AND BANDED POTTERY. UPPER LEVELS.

LVIII		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
3	AS	×	—	—	—	×	—	—	—	—	×	—	—	×	—	—	—	—	—	6	I	2	−11·7	DK. 4165
4	AS	×	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 4 & 7			−11·7	„ 6720
5	AS	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	9	XII	90	−8·5	„ 11777
6	AS	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	1	VI	40	−5·9	„ 4805
7	AS	×	—	—	—	—	×	—	—	—	×	×	—	—	×	—	—	—	—	9	X	55	−9·1	„ 12725
8	AS	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	18	—	95	−7·5	„ 12748
9	AS	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	4		11	−6·7	„ 4201
10	AS	×	—	—	—	×	—	—	—	—	×	—	—	—	—	×	—	—	—	7	VI	75	−9·5	„ 7182
11	AS	×	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	—	9	XI	70	−8·7	„ 10925
12	AS	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	IV	87	−11·7	„ 4778
13	AS	×	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	—	7	II	29	−9·2	„ 5062
14	AS	×	—	—	—	—	×	—	—	—	—	×	—	—	×	—	—	—	—	9	VI	41	−9·5	„ 8093
15	AS	×	—	—	—	—	—	×	—	—	×	—	—	—	—	—	—	—	—	7	I	19	−11·3	„ 4904
LIX																								
1	AS	×	—	—	—	×	—	—	—	—	—	—	—	—	—	×	—	—	—	Bet. Bls. 7 & 8			−6·6	„ 4319
2	B	×	—	—	—	×	—	—	—	—	×	—	×	—	—	—	—	—	—	Bet. Bls. 7 & 8			−6·6	„ 4319(b)
3	G	×	—	—	—	×	—	—	—	—	×	—	×	—	—	—	—	—	—	Bet. Bls. 7 & 8			−6·6	„ 4319(c)
4	AS	×	—	—	—	—	×	—	—	—	—	—	×	—	×	—	—	—	—	Bl. 7, bet. hos. III, IV			−8·5	„ 3624
5	B	×	—	—	—	×	—	—	—	—	—	×	—	×	—	—	—	—	—	Bl. 7, bet. hos. III, IV			−8·5	„ 3733
6	M	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	×	Bl. 7, bet. hos. III, IV			−8·5	„ 3738
7	AS	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	Bet. Bls. 6 & 8			−9·1	„ 3605
8	H	×	—	—	—	—	—	—	—	—	—	×	—	×	—	—	—	—	—	Bet. Bls. 6 & 8			−9·1	„ 3605(c)
9	H	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	Bet. Bls. 6 & 8			−9·1	„ 3605(c)
10	H	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	Bet. Bls. 6 & 8			−9·1	„ 3605(c)
11	B	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	Bet. Bls. 6 & 8			−9·1	„ 3605(c)
12	S	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	7	II	88	−7·1	„ 3591
13	SB	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	×	7	II	88	−7·1	„ 3593
14	B	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	7	II	88	−7·1	„ 3594
15	DA	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	7	II	88	−7·1	„ 3592
16	SB	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	×	Bet. Bls. 1 (III) & 7			−7·1	„ 3350
17	Z	×	—	—	—	×	—	—	—	—	×	—	×	—	—	—	—	—	—	Bet. Bls. 1 (III) & 7			−7·1	„ 3347

PLAIN AND BANDED POTTERY. UPPER AND LOWER LEVELS.

LIX		Pastes.			Slips.						Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
18	S	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	6	I	1	−10·6	DK. 3352
19	B	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	1	I	18	−8·8	„ 4499
20	B	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	1	I	18	−8·8	„ 4500
21	B	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	1	I	18	−8·8	„ 4501
22	H	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	VI	79	−6·9	„ 4715
23	C	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	9	VI	79	−6·9	„ 4714
24	AF	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	9	VI	39	−7·6	„ 6881
25	AF	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	9	VI	39	−7·6	„ 6879
26	C	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	3	VI	31	−10·6	„ 5362
27	B	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	1	I	18	−8·8	„ 4492
28	B	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	1	I	18	−8·8	„ 4493
29	C	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	12	I	1	−7·8	„ 4708(*a*)
30	C	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	12	I	1	−7·8	„ 4708(*b*)
31	AS	×	—	—	—	×	—	—	—	—	×	×	×	—	—	—	—	—	—	Bet. Bls. 9 (IV) & 9A.			−3·9	„ 3330
32	AS	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	—	Bet. Bls. 7 (I) & 10			−5·4	„ 4643
LX																								
1	A	×	—	—	—	—	—	—	—	×	—	—	×	—	—	—	×	—	—	7	III	40	−12·1	„ 8145
2	A	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	—	Bet. Bls. 1 (III) & 7			−18·1	„ 6790
3	A	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	First St. (1)			−23·0	„ 8776
4	A	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	7	IX	30	−15·2	„ 8275
5	A	×	—	—	—	×	×	—	—	—	—	×	—	—	—	—	—	—	—	3	VI	47	−18·2	„ 7314
6	A	×	—	—	—	×	—	—	—	—	—	—	×	—	—	×	—	—	—	First St. (18)			−22·6	„ 8580
7	A	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	×	—	—	10	IV	75	−23·9	„ 7578
8	A	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	First St. (18)			−21·6	„ 8535
9	A	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	—	3	VI	39	−20·8	„ 7637
10	A	×	—	—	—	—	×	—	—	—	—	×	×	—	—	×	—	—	×	7	III	52	−19·4	„ 8704
11	A	×	—	—	—	×	—	—	—	—	×	—	×	—	—	—	—	—	—	Bet. Bls. 2 & 3			−18·7	„ 3994
12	A	×	—	—	—	—	×	—	—	×	—	—	×	—	×	—	—	—	—	10	II	26	−13·9	„ 7757
13	A	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	4	—	7	−16·8	„ 6457
14	B	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	1	IV	61	−20·6	„ 9137
15	B	×	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	7	III	44	−12·3	„ 8091

PLAIN AND BANDED POTTERY. **LOWER LEVELS.**

LX		Pastes.				Slips.					Dégraissants.				Paints.					Locus.			Level (ft.)	Field No.
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.		
16	B	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	First St. (1)			−15·2	DK. 8003
17	B	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	First St. (5)			−17·1	„ 7590
18	H	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	2	II	24	−12·5	„ 4197
19	H	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	7	III	44	−16·1	„ 8345
20	C	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	8	I	8	−12·0	„ 8295
21	H	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	First St. (21)			−19·3	„ 7743
22	C	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	8	I	8	−12·0	„ 8295
23	C	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	3	V	22	−12·2	„ 5166
24	D	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	7	V	78	−13·7	„ 8647
25	E	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	9	VI	32	−19·4	„ 9038
26	E	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	10	I	4	−21·1	„ 8512
27	E	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	4	—	5	−20·2	„ 5762
28	E	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	9	VI	32	−19·4	„ 9036
29	E	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	7	I	14	−25·4	„ 9513
30	E	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	3	II	34	−20·7	„ 7596
31	F	×	—	—	—	—	—	×	—	×	—	×	—	—	—	—	—	—	×	1	VI	50	−15·1	„ 9068
31(a)	F	×	—	—	—	—	×	—	—	—	×	×	—	—	—	—	—	—	—	First St. (7)			−21·2	„ 8721
31(b)	F	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	×	First St. (18)			−21·6	„ 8536
32	F	×	—	—	—	×	×	—	—	—	—	—	—	—	×	—	—	—	—	3	VI	39	−20·8	„ 7634
33	G	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	East of Bl. 1 (I)			−21·0	„ 9301
34	G	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	×	First St. (12)			−22·7	„ 8626
35	G	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	×	7	IV	72	−15·1	„ 8283
36	F	×	—	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	×	8	II	19	−17·2	„ 9236
37	G	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	×	8	II	19	−17·2	„ 9235
38	G	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	×	First St. (18)			−21·6	„ 8537
39	G	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	×	First St. (21)			−21·2	„ 8673
40	AI	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	×	First St. (1)			−15·2	„ 8002
41	J	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	7	VIII	16	−24·0	„ 9382
42	JA	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	—	4	—	16	−19·5	„ 6341
43	L	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	9	VII	17	−14·4	„ 6715
44	L	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	7	III	52	−14·2	„ 5970

PLAIN AND BANDED POTTERY. LOWER LEVELS.

LX		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
45	L	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	—	3	VI	47	−19·4	DK. 7388
46	L	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	3	VI	31	−15·2	,, 4146
47	L	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	—	9	VI	78	−18·5	,, 8668
48	L	×	—	—	—	—	×	—	—	—	—	—	—	—	—	×	—	—	—	8	II	21	−15·3	,, 8689
49	L	×	—	—	—	—	×	×	—	—	—	—	—	—	—	—	—	—	—	10	II	26	−15·0	,, 7436
50	LA	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	First St. (18)			−22·8	,, 8800
51	J	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	—	East of Bl. 1 (I)			−13·0	,, 7271
52	J	—	—	—	×	—	—	×	—	—	—	—	—	—	—	—	—	—	—	4	—	15	−20·2	,, 6290
53	JA	—	—	—	×	—	×	—	—	—	—	×	×	—	×	—	—	—	—	First St. (5)			−21·7	,, 8557
54	L	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	—	Bet. Bls. 9 (VI) & 12			−16·1	,, 6551
55	LA	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	4	—	5	−19·6	,, 5696
56	LA	×	—	—	—	×	×	—	—	—	—	—	—	—	—	—	—	—	—	First St. (21)			−17·8	,, 7805
57	L	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 9A & 12A			−17·2	,, 7243
58	L	×	—	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	22	II	22	−18·7	,, 9135
59	LA	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	First St. (21)			−21·0	,, 8423
60	LA	×	—	—	—	×	×	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 3 & 4			−14·8	,, 5281
61	LA	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	7	VI	59	−19·7	,, 8789
62	LA	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	First St. (18)			−21·8	,, 8577
63	LA	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	7	V	68	−17·1	,, 8680
64	M	×	—	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	8	I	8	−12·0	,, 8296
65	M	×	—	—	—	—	×	—	—	—	—	×	×	—	×	—	—	—	—	4	—	6	−17·9	,, 6151
LXI																								
1	MA	×	—	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	3	I	15	−16·6	,, 9249
2	MA	×	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	1	VII	37	−16·5	,, 9285
3	MA	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	10	II	26	−21·6	,, 7775
4	MA	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	×	First St. (7)			−22·6	,, 8686
5	MA	×	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	10	II	26	−13·9	,, 7753
6	MA	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	1	IV	62	−22·0	,, 9349
7	MA	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	1	VIII	63	−17·8	,, 7606
8	MA	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	4	—	15	−20·4	,, 6089
9	MA	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	Bet. Bls. 1 (III) & 7			−13·4	,, 6383

PLAIN AND BANDED POTTERY. LOWER LEVELS.

LXI		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
10	N	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	1	I	20	−19·7	DK. 8895
11	MA	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	East of Bl. 1 (I)			−21·0	„ 9302
12	MA	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	1	IV	62	−22·0	„ 9347
13	AK	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	—	4	—	16	−17·6	„ 6580
14	R	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	×	—	—	7	V	78	−13·7	„ 8646
15	MA	×	—	—	—	—	—	—	—	—	—	×	—	×	—	—	—	—	—	First St. (7)			−18·9	„ 8569
16	MA	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	1	VI	55	−18·4	„ 9122
17	P	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	1	VII	56	−19·4	„ 5411
18	R	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	7	III	52	−14·9	„ 6026
19	S	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	Bet. Bls. 4 & 7			−12·0	„ 5765
20	S	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	8	I	8	−12·0	„ 8294
21	SB	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	7	VIII	20	−14·6	„ 7387
22	SB	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	×	First St. (1)			−14·9	„ 8018
23	SA	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	7	V	68	−17·1	„ 8679
24	SA	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	1	VI	52	−17·0	„ 9174
25	SA	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	Bet. Bls. 9 & 9A (V)			−14·7	„ 8348
26	SA	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	×	1	VI	55	−18·1	„ 9118
27	SA	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	×	9	III	35	−15·9	„ 8698
28	SA	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	×	1	IV	63	−21·0	„ 9001
29	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
30	T	×	—	—	—	—	×	—	—	—	—	—	×	—	×	—	—	—	—	7	I	19	−13·5	„ 6464
31	J	×	—	—	—	—	—	—	—	×	—	—	—	—	—	—	×	—	×	7	VIII	16	−23·9	„ 9466
32	MA	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	×	1	I	72	−18·7	„ 8911
33	MA	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	First St. (22)			−18·6	„ 8372
34	MA	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	1	VI	55	−18·4	„ 9123
35	MA	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	2.	I	10	−18·4	„ 9268
36	T	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	3	I	5	−16·2	„ 9169
37	N	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	1	IV	63	−20·3	„ 8978
37(a)	MA	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	×	7	VIII	21	−21·9	„ 8735
38	T	×	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	—	7	III	44	−16·1	„ 8343
39	UA	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	III	39	−14·3	„ 8385

PLAIN AND BANDED POTTERY. LOWER LEVELS.

LXI		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
40	DA	—	×	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	1	IV	62	–22·0	DK. 9348
41	T	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	7	III	44	–19·8	„ 8964
42	AK	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	×	1	III	1	–21·0	„ 9010
43	AK	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	7	III	52	–16·7	„ 8458
44	AK	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	1	IV	30	–17·8	„ 8993
45	AK	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	1	IV	62	–20·2	„ 9103
46	AL	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	×	First St. (21)			–22·5	„ 8747
47	MA	—	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	9	VIII	15	–15·4	„ 8316
48	UA	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 1 & 10 (I)			–26·6	„ 9505
49	UA	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	I	19	–20·5	„ 8476
50	AL	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	×	3	I	16	–20·8	„ 9345
51	U	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	7	IV	72	–15·1	„ 8284
52	U	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	11	III	34	–16·1	„ 4963
53	U	×	—	—	—	×	—	—	—	—	—	—	×	×	—	—	—	—	—	First St. (21)			–21·0	„ 8424
54	U	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	×	First St. (18)			–22·8	„ 8801
55	U	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	×	First St. (1)			–20·3	„ 8493
56	U	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	×	10	I	4	–21·1	„ 8515
57	U	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	First St. (18)			–21·6	„ 8534
58	U	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	7	IV	72	–14·6	„ 8207
59	V	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	1	IV	63	–19·7	„ 8939
60	V	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	1	I	17	–14·3	„ 5423
61	U	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	4	—	8	–18·3	„ 6123
62	U	×	—	—	—	×	×	—	—	—	—	×	×	—	—	—	—	—	×	Bet. Bls. 1 & 10 (I)			–18·2	„ 7012
63	U	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	×	7	I	18	–13·4	„ 6368
64	V	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	×	7	I	3	–32·1	„ 9816
65	V	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 12 & 12A			–16·3	„ 5181
66	U	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	7	V	78	–20·9	„ 8927
67	V	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	First St. (1)			–23·3	„ 8817
68	U	×	—	—	—	—	—	—	—	×	—	×	×	—	—	—	—	—	—	Bet. Bls. 5 & 6			–18·4	„ 7785
69	W	×	—	—	—	—	—	—	—	—	—	—	×	—	—	×	—	—	—	10	IV	84	–12·5	„ 7132
70	U	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	×	First St. (1)			–22·0	„ 8804

PLAIN AND BANDED POTTERY. LOWER LEVELS.

LXI		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
71	UA	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	Bet. Bls. 5 & 6			−21·0	DK. 8784
72	UA	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	I	22	−19·1	„ 7844
73	V	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	4	—	16	−19·4	7463
74	M	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	—	7	I	14	−13·4	„ 3443
75	W	×	—	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	7	VIII	16	−18·7	„ 7576
76	UA	—	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	×	7	VI	59	−19·7	„ 8787
77	W	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	12	V	95	−19·0	„ 7265
78	W	×	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	7	I	19	−12·7	„ 5913
79	V	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	×	First St. (1)			−23·7	„ 8820
80	V	×	—	—	—	—	—	—	—	—	×	—	×	—	—	—	—	—	—	5	I	12	−13·2	„ 4040
LXII																								
1	X	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	7	I	9	−21·7	„ 9360
2	X	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	2	IV	19	−18·9	„ 9195
3	X	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	1	IV	63	−18·7	„ 8977
4	X	×	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	8	II	19	−16·1	„ 8942
5	X	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	12A	I	15	−18·2	„ 7400
6	X	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	78	−19·3	„ 6560
7	X	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	II	25	−18·9	„ 9333
8	X	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	12A	I	17	−14·6	„ 7318
9	X	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	1	I	22	−15·0	„ 7687
10	X	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	1	III	1	−20·2	„ 9011
11	X	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	2	I	14	−14·6	„ 9168
12	X	—	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	10	II	24	−17·2	„ 8277
13	X	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11	III	35	−18·9	„ 6996
14	AC	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	9	VII	17	−14·5	„ 5362
15	AC	×	—	—	—	—	×	—	—	—	—	×	—	—	×	—	—	—	—	1	V	46	−12·5	„ 6303
16	AC	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	×	7	IX	30	−15·2	„ 8274
17	AC	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	×	7	I	14	−25·4	„ 9495
18	AC	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	4	—	8	−18·3	„ 6122
19	AC	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	2	I	3	−16·2	„ 9217
20	AC	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	10	I	5	−17·8	„ 7876

PLAIN AND BANDED POTTERY. LOWER LEVELS.

LXII		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
21	AC	×	—	—	—	—	—	—	—	×	—	×	×	—	×	—	—	—	×	7	I	9	−21·5	DK. 9354
22	AC	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	10	II	24	−17·2	,, 8276
23	AC	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	×	—	—	3	VI	47	−20·6	,, 7463
24	AC	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	First St. (7)			−22·7	,, 8702
25	AE	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	First St. (1)			−22·0	,, 8525
26	AE	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 1 & 10 (I)			−20·5	,, 7768
27	AF	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	I	75	−17·0	,, 7700
28	AF	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	8	I	8	−12·0	,, 8299
29	AF	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	10	III	63	−18·2	,, 5869
30	AF	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	9	VI	36	−19·0	, 8775
31	AF	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	12A	I	17	−21·5	,, 8790
32	AF	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	9	VII	48	−20·1	,, 7672
33	AF	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	First St. (18)			−21·2	,, 8426
34	G	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	×	Bet. Bls. 1 & 10 (I)			−25·8	,, 9490
35	G	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	Bet. Bls. 5 & 6			−18·7	,, 7763
36	G	—	—	—	×	—	—	×	—	×	—	—	—	—	—	—	—	—	×	Bet. Bls. 1 & 7			−24·8	,, 9458
37	AO	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	Bet. Bls. 1 & 10 (I)			−27·3	,, 9579
38	AJ	×	—	—	—	—	×	—	—	—	—	×	×	—	×	—	—	—	—	4	—	14	−20·2	,, 6273
39	MA	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	×	×	—	3	VI	29	−19·2	,, 7208
40	E	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	First St. (7)			−22·7	,, 8699
41	AK	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	2	I	10	−19·9	,, 9300
42	AK	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	7	I	3	−33·3	,, 9840
43	L	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	2	2	II	21	−18·6	,, 9225
44	MA	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	—	4	—	9	−18·4	,, 6695
45	AS	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	—	7	V	53	−19·5	,, 8902
46	AS	×	—	—	—	—	—	—	—	—	×	×	×	—	—	—	—	—	—	9	VI	32	−19·4	,, 9018
47	AS	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	Bet. Bls. 4 & 7			−21·9	,, 7027
48	AS	×	—	—	—	—	—	×	—	—	—	×	×	—	—	—	—	—	—	7	VIII	20	−20·4	,, 8396
49	AS	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	9	VII	17	−13·7	,, 5315(*a*)
50	AS	×	—	—	—	×	×	—	—	—	×	×	—	—	—	×	—	—	—	1	IV	63	−17·7	,, 8918
51	AS	×	—	—	—	×	—	—	—	—	—	×	×	—	×	—	—	—	—	Bet. Bls. 9 & 9A (V)			−18·0	,, 8628

PLAIN AND BANDED POTTERY. LOWER LEVELS.

LXII		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
52	AS	×	—	—	—	—	—	—	—	×	—	×	×	—	—	×	—	—	—	7	VIII	53	-14·0	DK. 6096
LXIII																								
1	AS	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	7	V	64	-18·4	„ 7777
2	AS	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	Bet. Bls. 1 & 10 (I)			-21·5	„ 9415
3	AS	×	—	—	—	—	×	—	—	—	—	×	×	—	×	—	—	—	—	Bet. Bls. 7 & 8			-19·3	„ 8990
4	AS	×	—	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	7	VIII	16	-21·0	„ 8598
5	AS	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	9	VII	17	-12·1	„ 5244
6	AS	×	—	—	—	—	—	×	—	—	—	×	×	—	—	—	—	—	—	3	IV	48	-17·9	„ 7286
7	AS	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	3	VI	47	-16·8	„ 7141
8	AS	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	7	III	52	-16·0	„ 6097
9	AS	×	—	—	—	×	—	—	—	—	—	—	—	—	×	—	—	—	—	4	—	12	-21·6	„ 6447
10	AS	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	×	8	I	8	-12·0	„ 8298
11	AS	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	4	—	79	-19·4	„ 6001
12	AS	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	3	I	15	-18·1	„ 9337
13	AS	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	First St. (1)			-15·2	„ 8000
14	AS	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	10	III	58	-18·8	„ 6030
15	AS	×	—	—	—	—	×	—	—	—	—	×	—	—	—	×	—	—	—	2	IV	21	-17·5	„ 7693
LXIV																								
1	W	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	First St. (21)			-14·9	„ 7738
2	U	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	First St. (21)			-16·9	„ 7720
3	J	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	First St. (21)			-16·9	„ 7717
4	L	×	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	1	I	17	-14·4	„ 5427
5	G	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	3	VI	40	-18·9	„ 7808
6	G	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	×	3	VI	40	-18·9	„ 7809
7	G	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	First St. (21)			-15·0	„ 7733
8	G	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	First St. (21)			-16·9	„ 7719
9	LA	×	—	—	—	—	×	—	—	×	—	—	—	—	—	—	—	—	—	First St. (21)			-16·9	„ 7718
10	MA	—	—	—	×	—	×	—	—	—	—	—	—	—	—	—	—	—	—	First St. (21)			-16·9	„ 7716
11	L	×	—	—	—	—	—	—	—	—	—	×	×	—	—	×	—	—	—	1	I	17	-14·4	„ 5428
12	B	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	First St. (21)			-16·9	„ 7737
13	F	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	First St. (21)			-14·9	„ 7732

Plain and Banded Pottery. Lower Levels.

LXIV		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
14	D	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—		Bet. Bls. 3 & 4		– 12·7	DK. 5261
15	U	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—		Bet. Bls. 3 & 4		– 12·7	„ 5262
16	AE	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	1	I	22	– 20·9	„ 7865
17	G	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	3	VI	40	– 18·9	„ 7808
18	G	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	3	VI	40	– 18·9	„ 7807
19	AD	×	—	—	—	—	×	—	—	—	—	×	—	—	×	—	—	—	—		First St. (5)		– 23·4	„ 7453
20	M	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—		First St. (18)		– 23·6	„ 8615
21	MA	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	—		First St. (18)		– 23·6	„ 8616
22	G	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	I	22	– 20·9	„ 7867
23	R	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—		First St. (1)		– 22·0	„ 8524
24	E	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—		First St. (5)		– 23·4	„ 7449
25	AK	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—		First St. (5)		– 23·4	„ 7456
26	G	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		First St. (5)		– 23·4	„ 7455
27	AK	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		First St. (18)		– 23·6	„ 8617
28	U	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	×		First St. (18)		– 23·6	„ 8614
29	UA	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	1	I	22	– 20·9	„ 7852
30	U	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—		First St. (1)		– 22·0	„ 8523
31	E	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—		First St. (1)		– 22·0	„ 8521
32	G	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	8	I	8	12·8	„ 8837
33	R	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	8	I	8	12·8	„ 8836
34	J	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	8	I	8	– 12·8	„ 8829
35	U	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	8	I	8	– 12·8	„ 8830
36	UA	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	I	22	– 20·9	„ 7852
37	V	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—		First St. (1)		– 22·0	„ 8526
38	AK	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	8	– 20·4	„ 6202
39	X	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	4	—	8	– 20·4	„ 6200
40	G	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—		First St. (1)		– 23·3	„ 8811
41	AK	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		First St. (1)		– 23·3	„ 8812
42	AQ	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—		First St. (1)		– 23·3	„ 8808
43	G	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	8	– 20·4	„ 6191
44	G	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—		First St. (1)		– 23·3	„ 8809

PLAIN AND BANDED POTTERY.

LXIV		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
45	SB	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	8	I	8	−12·8	DK. 8834
46	S	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	8	I	8	−12·8	„ 8832
47	SA	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	8	I	8	−12·8	„ 8831
48	S	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	I	8	−12·8	„ 8833
49	B	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	8	−20·4	„ 6192
50	AC	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—		First St. (1)		−23·3	„ 8810
51	SA	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—		First St. (1)		−23·3	„ 8807
52	G	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	3	VI	29	−19·2	„ 7210
53	E	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	3	VI	29	−19·2	„ 7207
54	G	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	3	VI	29	−19·2	„ 7211
55	E	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	×	3	VI	29	−19·2	„ 7205
56	AK	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	VI	29	−19·2	„ 7209
57	N	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	3	VI	29	−19·2	„ 7207
58	D	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—		First St. (22)		−17·5	„ 8363
59	G	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—		First St. (22)		−17·5	„ 8366
60	V	×	—	—	—	—	×	—	—	—	—	—	×	—	×	—	—	—	—	3	VI	29	−19·2	„ 7213
61	G	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	3	VI	29	−19·2	„ 7206
62	E	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	×	3	VI	29	−19·2	„ 7205
63	M	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—		First St. (22)		−17·5	„ 8362
64	G	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×		First St. (22)		−17·5	„ 8368
65	G	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	×		First St. (22)		−17·5	„ 8367
LXV																								
1	W	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	7	I	12	−13·0	„ 6406
2	U	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	7	I	12	−13·0	„ 6408
3	V	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	7	I	12	−13·0	„ 6407
4	G	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	7	I	12	−13·0	„ 6405
5	L	×	—	—	—	×	×	—	—	—	—	×	×	—	—	—	—	—	—	4	—	8	−12·4	„ 4951
6	B	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	4	—	8	−12·4	„ 4952
7	G	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	4	—	5	−19·6	„ 5695(g)
8	G	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	5	−19·6	„ 5695(h)
9	M	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—		First St. (6)		−21·0	„ 8712

PLAIN AND BANDED POTTERY. LOWER LEVELS.

LXV		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
10	AA	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—		First St. (21)		–16·7	DK. 7834
11	H	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	7	III	52	–16·0	„ 6107
12	E	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	4	—	5	–19·6	„ 5695(*f*)
13	E	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	4	—	5	–19·6	„ 5695(c)
14	AP	×	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	×	1	I	18	–13·1	„ 5517
15	AJ	×	—	—	—	×	×	—	—	—	—	—	×	—	—	×	—	—	—	1	I	18	–13·1	„ 5526
16	G	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	×		First St. (6)		–21·0	„ 8715
17	E	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	×		First St. (6)		–21·0	„ 8713
18	SA	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—		First St. (21)		–16·7	„ 7837
19	R	×	—	—	—	—	—	—	—	×	—	×	×	—	—	—	—	—	—	7	III	52	–16·0	„ 6106
20	R	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—		First St. (1)		–22·9	„ 8794
21	L	×	—	—	—	—	×	×	—	—	—	×	—	—	—	—	—	—	—	4	—	5	–19·6	„ 5695(*a*)
22	MA	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	3	IV	45	–15·4	„ 7227
23	G	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	IV	45	–15·4	„ 7226
24	N	×	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	×	3	V	7	–13·3	„ 4421
25	I	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	7	VIII	17	–13·8	„ 6439
26	H	×	—	—	—	—	—	—	—	×	—	×	×	—	—	—	—	—	—	7	VIII	17	–13·8	„ 6441
27	X	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	×	7	VIII	17	–13·8	„ 6440
28	G	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	×		First St. (6)		–21·0	„ 8714
29	AK	×	—	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—		First St. (1)		–22·9	„ 8798
30	U	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	×		First St. (1)		–22·9	„ 8793
31	UA	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	×		First St. (1)		–22·9	„ 8797
32	M	×	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	3	IV	45	–15·4	„ 7224
33	B	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	3	IV	45	–15·4	„ 7225
34	G	×	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	×	4	—	13	–14·9	„ 4945
35	A	×	—	—	—	×	×	—	—	—	—	—	—	—	—	—	—	—	—	4	—	13	–14·9	„ 4946
36	G	×	—	—	—	—	—	—	—	×	—	×	×	—	—	—	—	—	×		First St. (1)		–22·8	„ 8799
37	A	×	—	—	—	×	×	—	—	—	—	×	—	—	—	—	—	—	—	4	—	11	–21·0	„ 6100
38	E	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	4	—	11	–21·0	„ 6099
39	U	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	11	–21·0	„ 6102
40	E	×	—	—	—	×	—	—	—	—	×	—	×	—	—	—	—	—	×	4	—	11	–21·0	„ 6101

PLAIN AND BANDED POTTERY. LOWER LEVELS.

LXV		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
41	E	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	4	—	11	−21·0	DK. 6098
42	S	×	—	—	×	×	—	—	—	—	—	—	—	—	—	—	—	—	×	3	VI	47	−16·9	„ 7153
43	AS	×	—	—	—	—	—	×	—	—	—	—	×	—	—	—	×	—	—	3	IV	45	−15·4	„ 7223
44	C	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	3	VI	47	−16·9	„ 7152
45	E	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	4	—	8	−21·1	„ 6245
46	AK	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	4	—	8	−21·1	„ 6248
47	F	×	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	×	4	—	8	−21·1	„ 6243
48	AN	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	1	I	15	−13·9	„ 5706(*b*)
49	AN	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	1	I	15	−13·9	„ 5706(*f*)
50	AN	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	1	I	15	−13·9	„ 5706(*c*)
51	SB	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	1	I	15	−13·9	„ 5706(*a*)
LXVI																								
1	AL	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	×	3	I	16	−20·8	„ 9345
2	AL	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	×	First St. (21)			−22·5	„ 8747
3	AK	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	×	1	III	1	−21·0	„ 9010
4	AK	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	1	I	20	−19·7	„ 8895
5	AF	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	1	VII	4	−19·0	„ 5804
6	AC	×	—	—	—	—	×	—	—	—	—	×	—	—	×	—	—	—	—	1	V	46	−12·5	„ 6303
7	AC	×	—	—	—	×	—	—	—	—	—	—	×	—	—	—	—	—	×	7	IX	30	−15·2	„ 8274
8	AK	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	7	III	52	−16·7	„ 8458
9	J	×	—	—	—	—	×	—	—	×	—	—	—	—	—	—	—	—	—	Bet. Bls. 1 & 10 (I)			−15·7	„ 6546
10	AJ	×	—	—	—	—	×	—	—	—	—	×	×	—	×	—	—	—	—	4	—	14	−20·2	„ 6273
11	A	×	—	—	—	×	×	—	—	—	—	×	—	—	—	—	—	—	—	3	VI	47	−18·2	„ 7314
12	AM	×	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	10	I	2	−12·0	„ 5668
13	V	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	4	—	16	−19·4	„ 6463
14	UA	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	I	22	−20·9	„ 7852
15	AM	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	7	IX	31	−21·3	„ 9356
16	AF	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	First St. (18)			−21·2	„ 8426
17	L	×	—	—	—	—	×	×	—	—	—	×	—	—	—	—	—	—	—	4	—	5	−19·6	„ 5695(*a*)
18	T	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	4	—	11	−21·0	„ 6099
19	E	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	×	4	—	5	−19·6	„ 5695(*f*)

PLAIN AND BANDED POTTERY. LOWER LEVELS.

LXVI		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
20	F	×	—	—	—	—	×	×	—	—	—	—	—	—	—	—	—	—	—	3	VI	39	−20·8	DK. 7634
21	AM	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	1	III	1	−13·7	,, 5877
22	AC	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	First St. (7)			−22·7	,, 8702
23	T	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	7	VIII	16	−24·0	,, 9404
24	M	×	—	—	—	—	×	—	—	—	—	×	×	—	×	—	—	—	—	4	—	6	−17·9	,, 6151
25	T	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	3	I	5	−16·2	,, 9160
26	AP	×	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	×	1	I	18	−13·1	,, 5517
27	AM	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	?	?	?	?	,, 5984
28	AC	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	×	—	—	3	VI	47	−20·6	,, 7463
29	M	×	—	—	—	—	—	—	—	×	—	×	—	—	—	—	—	—	—	3	IV	45	−15·4	,, 7224
30	MA	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	10	II	26	−21·6	,, 7775
31	AK	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 1 (III) & 2			−20·8	,, 7127
32	MA	×	—	—	—	—	×	—	—	—	—	—	—	—	×	—	—	—	—	7	I	19	−14·1	,, 5918
33	MA	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	4	—	15	−20·4	,, 6089
34	AM	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	—	1	IV	61	−17·2	,, 8289
35	AC	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	10	II	24	−17·2	,, 8276
36	MA	×	—	—	—	—	—	—	—	—	—	×	—	×	—	—	—	—	—	First St. (7)			−18·9	,, 8569
37	MA	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	First St. (18)			−23·7	,, 8610
38	T	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	4	—	8	−21·1	,, 6251
39	AK	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	First St. (9)			−21·1	,, 8711
40	T	×	—	—	—	—	—	—	—	—	—	×	×	—	—	—	—	—	×	First St. (18)			−20·2	,, 8766
41	P	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	1	VII	56	−19·4	,, 5411
42	G	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	7	VIII	53	−15·4	,, 6545
43	MA	—	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	9	VIII	15	−15·4	,, 8316
44	MA	×	—	—	—	—	×	—	—	—	—	×	—	—	—	—	—	—	—	7	VIII	21	−21·9	,, 8735
45	MA	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	1	I	22	−14·6	,, 7588
46	T	×	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	×	4	—	78	−19·6	,, 6610
47	A	×	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	7	IX	30	−15·2	,, 8275
48	E	×	—	—	—	×	—	—	—	—	—	×	—	—	—	—	—	—	—	4	—	5	−19·6	,, 5695(c)
49	MA	×	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	×	—	7	IX	29	−22·2	,, 8644
50	AI	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	—	1	I	17	−14·3	,, 5395

PLAIN AND BANDED POTTERY. LOWER LEVELS.

LXVI		Pastes.				Slips.					Dégraissants.				Paints.					Locus.				
Plate.	Type.	Light-red.	Pink.	Grey.	Drab.	Cream.	Red.	Brown or Purple.	Black.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Purple-black.	Red.	White.	Trimming.	Block.	House.	Room.	Level (ft.).	Field No.
51	SA	×	—	—	—	×	—	—	—	—	—	×	×	—	—	—	—	—	×	1	III	1	−13·7	DK. 5876
52	A	×	—	—	—	—	×	—	—	—	—	×	×	—	—	—	—	—	—	4	—	7	−16·8	,, 6457
53	R	×	—	—	—	—	—	—	—	×	—	×	×	—	—	—	—	—	—	7	III	52	−16·0	,, 6106
54	AH	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	First St. (4)			−14·3	,, 4359

INCISED AND PAINTED POTTERY.

LXVII	Slips.					Dégraissants.				Paints.					Dimensions (inches).		Locus.				
Plate.	Light-red.	Dark-red.	Cream or White.	Green.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Red.	Green.	Yellow.	White.	Thickness.	Width and Length.	Block.	House.	Room.	Level (ft.).	Field No.
1	—	—	—	—	—	—	—	×	—	—	—	—	—	—	0·28	3·41 × 2·8	Bet. Bls. 1 and 10 (I)			−30·4	DK. 9730
2	—	—	—	—	—	—	—	×	—	—	—	—	—	—	0·24	3·3 × 2·86	Bet. Bls. 1 and 10 (I)			−30·4	,, 9730
3	—	—	×	—	—	—	×	×	—	—	—	—	—	—	0·3	4·22 × 2·55	7	I	3	−31·8	,, 9768
4	—	—	×	—	—	—	×	×	—	—	—	—	—	—	0·22	2·77 × 2·3	7	I	3	−33·4	,, 9838
5	—	—	—	—	—	—	—	×	—	—	—	—	—	—	0·46	2·42 × 2·3	Bet. Bls. 11 & 12			−21·8	,, 6959
6	×	—	—	—	—	—	—	—	—	×	×	×	—	×	0·36	3·73 × 2·73	7	I	3	−30·5	,, 9747
7	—	—	×	—	—	—	×	—	—	—	—	—	—	—	0·4	5·0 × 4·38	3	VI	39	−20·7	,, 7611
8	—	—	×	—	—	—	×	—	—	—	—	—	—	—	0·36	2·37 × 1·55	7	I	3	−29·9	,, 9738
9	—	—	×	—	—	—	×	—	—	—	—	—	—	—	0·39	1·96 × 1·64	7	V	64	−12·5	,, 7384
10	—	—	×	—	—	—	×	—	—	—	—	—	—	—	0·53	3·45 × 2·55	7	V	64	−12·5	,, 7384
11	—	—	×	—	—	—	×	—	—	—	—	—	—	—	0·37	2·16 × 1·2	7	V	64	−12·5	,, 7384
12	×	—	—	—	—	—	×	—	—	—	—	—	—	—	0·2	2·78 × 1·51	5	I	2	−17·3	,, 7236
13	—	—	×	—	—	—	×	×	—	—	—	—	—	—	0·4	6·45 × 4·06	Bet. Bls. 1 and 10 (I)			−33·0	,, 9632
14	×	—	×	—	—	—	×	×	—	—	—	—	—	—	0·5	7·38	3	II	34	−17·7	,, 9306
15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0·2	4·1	Bet. Bls. 1 and 10 (I)			−31·0	,, 9760
16	—	—	×	—	—	—	×	×	—	—	—	—	—	—	0·3	4·9	Low Lane (Bl. 6, III)			−21·9	,, 8571
17	—	×	×	—	—	—	×	×	—	—	—	—	—	—	0·7	8·89 × 5·14	7	I	3	−23·8	,, 9391
18	—	×	×	—	—	—	×	×	—	×	×	—	—	—	0·59	8·2 × 8·05	9	VI	36	−16·7	,, 8341
19	—	×	—	—	—	—	×	×	—	—	—	—	—	—	0·67	4·25 × 3·29	7	I	9	−36·1	,, 9822
20	—	—	×	—	—	—	—	×	—	—	—	—	—	—	0·4	4·1 × 1·67	Bet Bls. 3 & 5			−21·0	,, 7122
21	—	—	—	—	—	—	×	×	—	—	—	—	—	—	0·8	3·75 × 3·01	2	I	8	−14·4	,, 7420

INCISED AND PAINTED POTTERY. LOWER AND UPPER LEVELS.

LXVII	Slips.					Dégraissants.				Paints.					Dimensions (inches).		Locus.				
Plate.	Light-red.	Dark-red.	Cream or White.	Green.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Red.	Green.	Yellow.	White.	Thickness.	Width and Length.	Block.	House.	Room.	Level (ft.).	Field No.
22	—	×	×	—	—	—	×	×	—	×	×	—	—	—	0·68	6·8 × 3·6	10	I	11	−27·0	DK. 9804
23	—	—	×	—	—	—	×	—	—	—	—	—	—	—	0·63	8·35 × 6·81	4	—	79	−19·4	„ 6001
24	—	—	×	—	—	—	×	×	—	—	—	—	—	—	0·6	5·7 × 4·97	First St. (5)			−16·4	„ 7179
25	—	×	×	—	—	—	×	×	—	×	×	—	—	—	0·51	10·9 × 5·61	Bet. Bls. 9 (VI) and 12			−16·2	„ 8229
26	—	×	—	—	—	—	×	—	—	—	—	—	—	—	1·7	5·52 × 4·1	7	VIII	16	−31·1	„ 9796
27	—	—	×	—	—	—	×	—	—	—	—	—	—	—	0·62	8·1 × 6·47	Bet. Bls. 1 and 10 (I)			−13·3	„ 6602
LXVIII																					
1	×	—	—	—	—	—	—	×	—	×	—	—	—	—	0·3	5·6 × 4·06	7	III	40	−3·2	„ 3137
2	×	—	—	—	—	—	×	×	—	×	—	—	—	—	0·56	3·76 × 3·55	1	VIII	63	−9·8	„ 5947
3	—	×	—	—	—	×	—	×	—	×	—	—	—	—	0·62	6·37 × 4·68	10	IV	78	−7·3	„ 4816
4	—	×	—	—	—	—	—	×	—	×	—	—	—	—	0·25	3·2 × 2·96	9	II	11	−3·9	„ 3301
5	—	—	—	—	—	—	—	×	—	×	—	—	—	—	0·5	5·96 × 5·44	6	I	3	−7·8	„ 3596
6	×	—	—	—	—	×	—	×	—	×	—	—	—	—	0·42	4·33 × 2·63	7	V	62	−4·0	„ 3407
7	—	—	×	—	—	—	—	×	—	—	×	—	—	—	0·36	1·85 × 1·53	1	I	18	−5·5	„ 4410
8	—	×	—	—	—	—	—	×	—	×	—	—	—	—	0·45	4·28 × 2·81	7	VIII	16	−3·1	„ 3413
9	—	—	—	—	—	—	—	—	—	×	×	×	—	—	0·2	1·4 × 1·36	6	III	14	−8·4	„ 3742
10	—	—	—	×	—	—	×	—	—	×	×	×	—	×	0·2	2·21 × 1·5	6	I	3	−9·5	„ 3643
11	×	—	—	—	—	—	×	—	—	×	—	—	—	—	0·4	5·4 × 3·31	7	I	19	−11·6	„ 5927
12	×	—	—	—	—	—	—	×	—	×	—	—	—	—	0·51	6·0 × 4·68	7	VIII	28	−10·7	„ 5858
13	—	×	—	—	—	×	—	×	—	×	—	—	—	—	0·4	3·58 × 2·62	Bet. Bls. 9 & 10 (III)			−11·0	„ 6578
14	×	—	—	—	—	—	×	×	—	×	—	—	—	—	0·39	4·32 × 3·35	16	III	20	−1·3	„ 10552
15	—	—	—	×	—	—	×	—	—	×	×	—	—	×	0·2	1·75 × 1·7	6	I	3	−9·5	„ 3643
16	—	—	—	—	×	—	×	×	—	×	—	—	—	—	0·52	5·55 × 3·05	7	V	68	−6·6	„ 3514
17	—	—	—	—	×	—	×	×	—	×	—	—	—	—	0·46	2·62 × 2·18	7	V	68	−6·9	„ 3569
18	—	—	—	—	×	—	×	×	—	×	—	—	—	—	0·55	10·0 × 7·85	7	V	68	−6·9	„ 3558
19	—	—	—	—	×	—	×	×	—	×	—	—	—	—	0·43	4·22 × 2·85	7	V	68	−6·9	„ 3569
20	—	—	—	—	×	—	×	×	—	×	—	—	—	—	0·4	3·73 × 1·6	7	V	68	−6·9	„ 3551
21	—	—	—	—	×	—	×	×	—	×	—	—	—	—	0·5	6·67 × 3·86	7	V	68	−6·6	„ 3515
22	—	—	—	—	×	—	×	×	—	×	—	—	—	—	0·63	10·65 × 6·8	7	V	68	−6·9	„ 3558
23	—	—	—	—	×	—	×	×	—	×	—	—	—	—	0·5	9·13 × 8·75	7	V	68	−6·6	„ 3516
24	—	—	—	—	×	—	×	×	—	×	—	—	—	—	0·5	13·9 × 8·6	7	V	68	−7·0	„ 3532

INCISED AND PAINTED WARE. LOWER LEVELS.

LXVIII	Slips.					Dégraissants.				Paints.					Dimensions (inches).		Locus.				
Plate.	Light-red.	Dark-red.	Cream or White.	Green.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Red.	Green.	Yellow.	White.	Thickness.	Width and Length.	Block.	House.	Room.	Level (ft.).	Field No.
25	—	—	—	—	×	—	×	×	—	×	—	—	—	—	0·6	10·25 × 9·5	7	V	68	−6·9	DK. 3563
26	—	—	—	—	×	—	×	×	—	×	—	—	—	—	0·53	8·03 × 8·03	7	V	68	−6·9	„ 5569
LXIX																					
1	—	—	×	—	—	—	—	—	—	×	×	—	×	—	0·31	2·5 × 1·9	9	III	30	−11·1	„ 8313
2	—	—	×	—	—	—	—	—	—	×	×	—	—	×	0·2	3·74 × 2·58	9	VI	78	−9·8	„ 5435
3	—	—	×	—	—	—	—	—	—	×	×	—	×	—	0·31	2·5 × 1·9	9	III	30	−11·1	„ 8313
4	×	—	—	—	—	—	—	—	—	—	—	—	—	—	0·3	4·25 × 2·75	9	VI	38	−9·4	„ 6986
5	×	—	—	—	—	—	—	—	—	—	—	—	—	—	0·3	4·25 × 2·75	9	VI	38	−9·4	„ 6986
6	—	—	—	—	—	—	—	—	—	×	×	—	—	—	0·25	1·13 × 0·95	9	VIII	21	−10·6	„ 8173
7	×	—	—	—	—	—	—	—	—	×	—	—	—	—	0·5	4·81 × 3·3	1	V	48	−11·8	„ 6135
8	—	×	—	—	—	—	×	×	—	×	—	—	—	—	0·34	2·6 × 2·4	1	III		−11·8	„ 5314
9	—	×	—	—	—	—	—	×	—	×	—	—	—	—	0·4	5·26 × 4·09	Bet. Bls. 7 (VII) & 10(II)			−7·5	„ 7880
10	×	—	—	—	—	—	×	×	—	×	—	—	—	—	0·22	3·75 × 2·47	9	I	34	−9·8	„ 8517
11	×	—	—	—	—	—	×	—	—	×	—	—	—	—	0·4	4·66 × 3·35	7	I	19	−11·5	„ 5927
12	×	—	—	—	—	—	—	—	—	×	—	—	—	—	0·55	10·0 × 7·85	7	V	68	−6·9	„ 3558
13	—	×	—	—	—	—	×	×	—	×	—	—	—	—	0·42	4·78 × 4·4	Bet. Bls. 7 (VII) & 10(II)			−7·8	„ 7881
14	—	×	—	—	—	—	—	—	—	×	—	—	—	—	0·45	7·57 × 6·22	1	V	48	−11·5	„ 6135
15	×	—	—	—	—	×	—	×	—	×	—	—	—	—	0·46	2·77 × 2·6	10	I	4	−10·7	„ 5367
16	×	—	—	—	—	—	×	×	—	×	—	—	—	—	0·52	5·62 × 5·5	Bet. Bls. 7 (VII) and 4			−7·5	„ 7880
17	—	×	—	—	—	—	—	—	—	×	—	—	—	—	0·46	4·62 × 3·73	Bet. Bls. 7 (VII) and 4			−7·8	„ 7881
18	—	×	—	—	—	×	×	—	—	×	—	—	—	—	0·23	5·39 × 2·95	1	VII	30	−8·6	„ 4906
19	—	×	—	—	—	—	—	×	—	×	—	—	—	—	0·56	7·5 × 5·31	8	II	14	−9·2	„ 8039
20	—	×	—	—	—	—	×	×	—	×	—	—	—	—	0·7	5·9 × 4·74	Bet. Bls. 7 (VII) and 4			−7·8	„ 7881
21	—	—	—	—	—	—	×	—	—	×	—	—	—	—	0·28	3·37 × 2·77	10	III	65	−7·8	„ 4918
22	×	—	—	—	—	—	—	×	—	×	—	—	—	—	0·51	6·0 × 4·68	7	VIII	28	−10·7	„ 5858
LXX																					
1	—	—	—	—	—	—	—	—	—	—	—	—	—	×	0·42	1·35 1·42	Bet. Bls. 3 and 5			−21·0	„ 7121
2	—	—	—	—	—	—	—	—	—	—	—	—	—	×	0·34	2·08 × 1·53	10	I	4	−20·8	„ 8552
3	—	—	—	—	—	—	—	—	—	—	—	—	—	×	0·19	1·66 × 1·16	Bet. Bls. 1 and 10 (I)			−29·9	„ 9727
3A	—	—	—	—	—	—	—	—	—	—	—	—	—	×	0·18	—	Bet. Bls. 1 and 10 (I)			−29·9	„ 9727
4	—	—	—	—	—	—	—	—	—	—	—	—	—	×	0·2	1·37 × 1·3	Bet. Bls. 1 and 10 (I)			−28·2	„ 9696

INCISED AND PAINTED WARE. LOWER LEVELS.

LXX	Slips.					Dégraissants.				Paints.					Dimensions (inches).		Locus.			Level (ft.).	Field No.
Plate.	Light-red.	Dark-red.	Cream or White.	Green.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Red.	Green.	Yellow.	White.	Thickness.	Width and Length.	Block.	House.	Room.		
5	×	—	—	—	—	—	×	×	—	×	—	—	—	—	0·38	3·9 × 3·5	7	VIII	16	−23·7	DK. 9361
6	×	—	—	—	—	—	×	×	—	×	—	—	—	—	—	3·34	4	—	16	−19·5	„ 6338
7	×	—	×	—	—	—	—	×	—	×	—	—	—	—	—	5·93	1	I	18	−13·1	„ 5526
8	—	—	×	—	—	—	—	—	—	×	×	—	—	—	0·28	2·2 × 2·3	4	—	12	−12·7	„ 5754
9	—	—	×	—	—	—	×	—	—	×	×	—	—	×	0·25	2·6 × 2·58	Bet. Bls. 1 and 10 (I)			−32·0	„ 9772
10	—	—	×	—	—	—	—	—	—	×	×	—	—	—	0·31	2·42 × 2·0	7	VII	58	−13·3	„ 8576
11	—	—	×	—	—	—	×	—	—	×	×	—	—	—	0·2	3·15 × 1·7	2	II	22	−20·4	„ 9308
12	—	—	—	—	—	—	×	—	—	×	×	—	—	×	0·35	2·57 × 1·83	Bet. Bls. 7 & 9 (VIII)			−18·4	„ 8846
13	—	—	—	—	×	—	×	×	—	—	×	—	—	—	0·28	3·5 × 2·52	1	VIII	65	−16·3	„ 7728
14	×	—	—	—	—	—	×	—	—	×	—	—	—	—	0·35	5·3 × 2·67	Bet. Bls. 9 (VI) & 12			−18·9	„ 8849
15	×	—	—	—	—	—	×	×	—	×	—	—	—	—	0·38	4·2 × 3·43	4	—	14	−21·8	„ 6472
16	×	—	—	—	—	—	—	×	—	×	—	—	—	—	0·31	4·7 × 5·0	Bet. Bls. 1 and 7			−12·3	„ 6705
17	—	×	—	—	—	—	×	×	—	×	—	—	—	—	0·25	3·2 × 3·4	4	—	8	−21·1	„ 6252
18	×	—	—	—	—	—	×	—	—	×	—	—	—	—	0·45	4·3 × 3·7	1A	—	58	−18·2	„ 5211
19	—	×	—	—	—	—	×	×	—	×	—	—	—	—	0·43	4·95 × 3·7	Bet. Bls. 1 and 10 (I)			−17·3	„ 6810
20	—	—	×	—	—	—	×	—	—	×	—	—	—	—	0·4	3·52 × 4·65	1	VIII	64	−16·3	„ 5921
21	×	—	—	—	—	—	×	×	—	×	—	—	—	—	0·31	3·4 × 2·8	7	II	90	−16·5	„ 7900
22	×	—	—	—	—	—	×	—	—	×	—	—	—	—	0·2	2·2 × 1·96	7	I	14	−13·6	„ 6178
23	×	—	—	—	—	—	×	×	—	×	—	—	—	—	0·25	3·3 × 2·23	10	IV	85	−19·4	„ 7300
24	×	—	—	—	—	—	×	×	—	×	—	—	—	—	0·37	4·5 × 2·95	1	VIII	64	−16·3	„ 5922
25	×	—	—	—	—	—	×	—	—	—	×	—	—	—	0·34	4·6 × 3·25	7	II	90	−16·5	„ 7900
26	×	—	—	—	—	—	×	—	—	×	—	—	—	—	0·3	3·9 × 2·1	Bet. Bls. 1 (III) and 7			−14·2	„ 6605
27	—	×	—	—	—	—	×	—	—	×	—	—	—	—	0·4	3·5 × 2·48	1	I	21	−16·6	„ 7828
28	×	—	—	—	—	—	×	×	—	×	—	—	—	—	0·43	5·3 × 4·8	7	I	14	−26·7	„ 9553
29	—	—	—	—	×	—	—	—	—	×	—	—	—	—	0·48	4·3 × 4·2	1	VIII	64	−16·3	„ 5910
30	—	×	—	—	—	—	×	×	—	×	—	—	—	—	0·37	5·62 × 4·8	7	IV	49	−14·3	„ 8169
31	×	—	—	—	—	—	×	×	—	×	—	—	—	—	0·48	4·4 × 2·82	9	III	35	−15·9	„ 8697
32	×	—	—	—	—	—	×	×	—	×	—	—	—	—	0·35	3·9 × 2·96	7	I	15	−17·2	„ 8319
33	×	—	—	—	—	—	×	×	—	—	×	—	—	—	0·43	8·9 × 4·2	7	II	90	−16·5	„ 7900
34	×	—	—	—	—	—	×	×	—	×	—	—	—	—	0·45	5·0 × 3·88	9	III	35	−15·9	„ 8966
35	×	—	—	—	—	—	×	—	—	×	—	—	—	—	0·5	6·0 × 5·7	7	IV	49	−12·3	„ 8134

INCISED AND PAINTED WARE. LOWER LEVELS.

LXX	Slips.					Dégraissants.				Paint.					Dimensions (inches).		Locus.				
Plate.	Light-red.	Dark-red.	Cream or White.	Green.	Pink.	Sand.	Mica.	Lime.	Dirt.	Black.	Red.	Green.	Yellow.	White.	Thickness.	Width and Length.	Block.	House.	Room.	Level (ft.).	Field No.
36	×	—	—	—	—	—	×	—	—	×	—	—	—	—	0·42	5·3 × 3·93	7	IV	49	−12·3	DK. 8134
37	×	—	—	—	—	—	×	×	—	×	—	—	—	—	0·52	9·8	1	VIII	63	−17·9	„ 5947
38	×	—	—	—	—	—	×	×	—	×	—	—	—	—	0·89	4·92 × 5·2	9	III	29	−13·3	„ 8504
39	×	—	—	—	—	—	×	×	—	×	—	—	—	—	0·55	6·73 × 4·9	9	III	29	−13·3	„ 8503
40	—	—	×	—	—	—	—	—	—	×	—	—	—	—	0·21	2·9 × 2·35	1	I	21	−16·3	„ 7728(a)
41	—	—	—	—	×	—	×	—	—	—	×	—	—	—	0·25	3·8 × 3·2	1	I	21	−16·3	„ 7728(c)

CHAPTER IX.

STATUES, FIGURINES AND MODEL ANIMALS.

The human and animal figurines that form the subject of this chapter are grouped in the plates in two sections, namely, those found in the upper levels down to 12 ft. below datum, and those from below that level. This arrangement enables the reader to note for himself the differences in technique, etc., between the objects of the earlier and later periods, though, I confess, they are not so manifest as was at first expected. Yet in certain of the figurines there are definite differences to be pointed out. The general description of the objects must necessarily include those from all the levels, and in the course of it I make certain necessary comparisons.

Statues (*Pls. LXXI, 30–32 ; CV, 60, 61*).

The only pieces of stone statuary that have come to light in the SD and DK Areas since 1927 are unfinished; but that they definitely represent men is evident.

Nos. 30–32 (SD 2781) in Pl. LXXI show a part of an unfinished statue of limestone, now 8·5 ins. high which had, unfortunately, not only been broken but was corroded by damp. The posture is very much the same as in another unfinished piece found previously in the HR Area,[1] save that in the latter one knee is very considerably higher than the other. Apparently a kilt is worn, the upper edge of which is indicated in front. The right hand seems to have held a staff or sceptre, for it is represented as partly closed about a vertical hole 0·33 in. in diameter and 1·25 ins. deep. A series of holes drilled just above the ankles may represent tattooing or an anklet of beads. This figure seems never to have been more than roughly finished, though weathering has removed many of the details. The head was not found, but it may be recovered in the course of further excavation. Locus: SD Area, Block 1, south-west corner of fenestrated court (61). Level: +2·4 ft.

Nos. 60 and 61 (DK 4647) in Pl. CV. Soft, cream-coloured limestone, 8·25 ins. high. This unfinished figure is represented as seated with hands on knees and clothed in a kilt-like garment, a part of which is stretched between the legs. A somewhat indefinite oblique line just below the left shoulder was perhaps intended to represent a vest or shawl; but, if so, the garment would have been worn over the right shoulder, whereas in the great majority of archaic figures a garment of this description passes over the left shoulder and leaves the right shoulder bare. There are also indications of a fillet round the head. The eyes were roughly cut and obviously not finished; the left one is merely a shallow circular hole and the right eye definitely elongated and sloping upwards towards the outer end. No attempt had been made to indicate the nose, mouth or ears.

From the general shape of the head it seems that this figure also would have been similar in style to the one found by Mr. Hargreaves in the HR Area.[2] The attitude is again the same, except that in the earlier found statue the right knee is raised. Locus: Bl. 5, ho. II, rm. 6. Level: −9·2 ft.

[1] Marshall, *Mohenjo-daro and the Indus Civilization*, pl. C, figs. 4–6.

[2] *Mohenjo-daro and the Indus Civilization*, pl. C, figs. 4–6.

Figurines.

With only one exception,[1] all the human figurines described below were made of a paste that burned either light or dark pink in the kiln, according to the degree of heat that they underwent. In many cases exactly the same clay was used as for the pottery, and it is likely that the source of supply was the same for both the potter and the image-maker. It will, I am afraid, never be determined whether the making of these pottery images—I, of course, refer to the better made ones only—was entrusted to a recognised idol-maker or to the potter, though it is probable that there were professional image-makers, as at the present day in India. The modern image-maker is not, however, regarded as following a sacred calling.[2]

We find the same dégraissants mixed with the clay of which the images were made as were used in the making of pottery, namely, either lime or mica, or both. These ingredients, however, seem quite unnecessary in solid figures which would hardly be liable either to crack in drying or warp in baking. Possibly the clay was ready tempered before purchase by the potter or image-maker, as the case might be.

No human figures of smaller size than the statues seem to have been made of stone, with two exceptions, one of which is a fragment only, from the SD Area (Pl. LXXXII, 4, 7)—perhaps because, except for steatite, a suitable stone was difficult to procure and even then called for expert craftsmanship. A more probable reason, to my mind, for the use of clay even for elaborate figures intended to be worshipped is that it was regarded as essential, especially in very early times that mother-earth should be the material used for a figure of an Earth- or Mother-goddess—the two titles were synonymous in some ancient cults.[3]

Mutilation.

The fact that so many of these images are in a very mutilated condition seems to call for explanation. They are found both in the streets and in dwelling-houses; and they do not appear to have been votive offerings, except perhaps those of coarser make, for if so, we should expect to find quantities together, thrown out from shrines to make room for others. That they were not destroyed by an alien people for iconoclastic reasons is clear; the pieces would in that case be found together. Nor do I think that they were made for special occasions, as are certain images at the present day, for the reason that the latter serve whole groups of people and are, in consequence, few in number.[4] My

[1] This was made of a light grey clay similar to that sometimes used for pottery (pp. 174, 175).

[2] The Indian idol-maker fashions clay images of various deities according to the time of the year at which they are worshipped. These images are sold in the ordinary way and are not considered sacred until a rite of animation has been performed and the figure consecrated. It is then set up in the house of the purchaser; E. O. Martin, *Gods of India*, p. 173. See also *Indian State Railways Magazine*, Jan. 1930, p. 290.

[3] Mother Earth is worshipped as a household goddess in many parts of India to-day; Crooke, *Popular Religion and Folk-lore in Northern India*, I, p. 29.

[4] I would instance the clay figures of Máriyamma that are made in times of pestilence and thrown away outside the houses when finished with.

impression is that the better made female figurines and perhaps some of the male figures, too, were household deities, perhaps carefully preserved in a niche in the wall until they were broken by accident, when they were thrown away.[1] In this case, the lack of perfect figurines would be explained by their being carried off with other household effects when the city was periodically deserted.

Colouring.

Most of the figurines were painted over with a red slip or wash, as are many of the Indian figurines of to-day. In many countries the colour red is regarded as distasteful to evil spirits; this colour would, therefore, be appropriate to sacred images.[2] Red is also a fertility colour[3] and appropriate, therefore, to the female figurines which doubtless represented the Earth- or Mother-goddess as the Lady of Creation and Provider of all Things.

The use of a red wash or slip for images of deities is not by any means confined to ancient and modern India. A female figurine of great antiquity from Badari in Egypt was undoubtedly coated with this colour,[4] and some early Cypriote figurines are ruddled. On a small female figure found at Hal-Tarxien, Malta, by Prof. Sir T. Zammit, the red slip was polished as on some of the Indus figurines;[5] and certain figures of Danubian civilization lately unearthed at Vinča in Serbia are painted red. In Babylonia, also, the clay figures of deities and protective demons were so coloured.[6] I have no doubt that the practice was even more common than we are aware of at present; for red ochre, especially when applied to smooth stone, is very apt to scale off after prolonged burial in a damp or salty soil, and it occurs repeatedly at Mohenjo-daro that the red coating of the figurines, male and female, is now barely discernible.

It is true that many of the model animals also were coloured red, even those which are so badly made that it is unlikely that they were regarded as cult objects, and which are more probably merely toys made by children. To these, the red colour may have been applied not only as a finish or decoration but with the idea of protection against possible harm through the object to the owner.

It is noticeable that in only a very few of the better made figurines is the red slip polished. Long sojourn, however, in salty patches of soil may have removed polish that once existed. The double head seen in Pl. LXXVI, 8, was first coated with a thick pink slip and then washed over with red, a technique also seen in the case of the broken figure, No. 18 in the same plate; in this example, however, the slip was cream-coloured. Both these figures are unusual in appearance and both come from the lower levels. It was perhaps thought that a more uniform coating of red was obtainable with a slip as base rather than

1 If accidentally broken, these figurines would naturally have lost their sacred nature as the abode of a deity.

2 For instance, this belief is held in China; and in Egypt both red and blue are regarded as a protection against the evil eye.

3 Bonsor, *Man*, Dec. 1925, p. 195.

4 Brunton and Caton-Thompson, *Badarian Civilization*, p. 29.

5 *Archæologia*. vol. LXX, p. 197. fig. 21(c).

6 Woolley, *Antiquaries Journal*, vol. XI, p. 368.

the bare surface of the pottery. In a very few cases, as in the female figure, No. I in Pl. LXXV, the front only of the figure was coloured red, and both the back of the figure and the head-dress were left uncoloured, except where the wash had accidentally trickled round from the front.

Besides the general coating of red, there is now definite evidence that on some at least of these figurines other colours also were used. On four of those found since 1927 (Pls. LXXIII, 3, 4, 7 ; LXXV, 20) a stucco was applied over the usual red wash. In the first two and last of these it is still to be seen adhering, white, to a part of the face and the bands of the head-dress ; on the remaining figurine there are traces of deep olive-green on part of the necklace. These are the only known examples of the polychrome colouring of these images, and whether it was confined to the upper part of the figure or was general, we do not know. This additional ornamentation need occasion no surprise, for it is evident from the modelling of these figures, crude as it is, that some attempt was made to achieve a natural appearance.

Dress.

The curious fan-shaped head-dress which is so frequently worn by the figurines from all levels (Pls. LXXII, 4 ; LXXIII, 4, 6 ; LXXV, 1, 4, 6 ; etc.) may have been that usual at the period. Certain prehistoric figures from Adalia in Asia Minor wear something similar[1] to the fan-shaped portion, and in the collection of Sir Robert Mond there is a figure (perhaps of Astarte), which was bought by him in Syria and whose original provenance may have been Cyprus, whose head-dress bears a general resemblance to that of the figurines of Mohenjo-daro.

The pannier-like additions on either side of the heads illustrated in Pls. LXXIII, 3, 4 ; LXXV, 21–3 are unique ; this portion of the head-dress is quite unknown outside India, and at Mohenjo-daro it appears to be confined to figures of the Mother-goddess. A band round the forehead, apparently of some kind of woven material, served to support them. These panniers vary in size from being just slightly hollowed out (Pl. LXXIII, 6) to being deep and cup-like in shape (Pls. LXXIII, 4 ; LXXV, 21–3). In some of them, black, soot-like stains still remain (Pl. LXXIII, 3, 4, and the exceptionally well-preserved figurine seen in Pl. LXXV, 21–3). A re-examination of previously found specimens[2] has revealed similar stains in the panniers of the head-dress. I am now inclined to think that these stains were produced by these pannier-like receptacles being sometimes used as tiny lamps, especially as there are traces of black on the edges of the head-dress, as if they had been smoked by a flame. Lamps are, of course, commonly burnt before images in India and elsewhere, but I do not know of such a practice as using part of the image itself as a lamp being recorded anywhere ; nor as far as I have been able to ascertain does this practice obtain in India at the present day.

The possibility that these black marks may have been caused by constant anointing with *ghee*, or clarified butter, a rite that is commonly performed in

[1] *Liv. Ann. Arch. and Anthrop.*, vol. II, pl. XXVI, 4.

[2] *Mohenjo-daro and the Indus Civilization*, pl. XCIV, fig. 1.

India to-day and which has come down from a remote past, has also been considered. But it seems improbable that the stains left by a fat would have survived through so long a period of time, unless carbonization had taken place.[1] Whatever the cause, the proximity of this blackening to the ears is very significant, for it implies that something was done to prevail upon the goddess to give a favourable hearing to a petition. It should not, however, be supposed that the female figurines were provided with these panniers solely for this purpose; they were evidently copies of some actual head-dress. Conceivably, they were greatly exaggerated in size in the making of the figurines in order to fulfil their secondary purpose; the originals may have been comparatively small.[2]

These pannier-like head-dresses are distinctly rarer in the lower than in the upper levels.

When worn alone the fan-shaped head-dress is often much ornamented; for instance, there are sometimes round medallions at the sides (Pl. LXXV, 3; Pl. LXXVI, 13), and frequently there are what may be strings of beads and cone-like ornaments (Pls. LXXV, 3, 8; LXXVI, 17), the latter resembling the metal cones worn on the forehead by women of the Punjāb at the present day. It is possible that this fan-shaped erection may have been the actual hair stiffened in some way.

A very unusual head-dress is seen in Pl. LXXV, 15, 16. Though it has the usual fan and side appendages, there is a very curious object perched upon the fan, in appearance like a four-legged stool with corresponding, but smaller projections upwards from the seat. At first sight, the roughness of the work suggested that this strange object had become accidently attached to the usual head-dress in the kiln, but the finding of another such head-dress—also at a low level—proved that it was no accident.[3]

Male figurines, of which also some may represent deities, are commonly bare-headed (Pl. LXXVI, 23, 24) or merely wear a simple fillet round the forehead to keep the hair in place (Pls. LXXII, 8–10; LXXVI, 6). The turban in Pl. LXXVI, 16, is very unusual.

None of the female figurines are represented as entirely nude; they usually wear a short, plain kilt (Pls. LXXIII, 6; LXXV, 1; LXXVI, 21), sometimes ornamented with medallions. I have before compared the latter type of kilt with the *kaunakes* of Sumer, but further examples that we have found lend no support to this comparison. The medallions, if present, either cover the whole of the skirt (Pl. LXXVI, 22)[4] or they are arranged along the top of it, as in the figurine of Late III date in Pl. LXXII, 5, 6, and conceivably attached to the upper edge of the short skirt above the girdle which kept it in place. It would be idle to discuss what the originals of these medallions were made of, for we

[1] Pottery, of course, may be stained, and frequently is, by unknown substances in the soil. But these stains would hardly be localized to certain definite positions.

[2] Pl. XCIV, 1, of *Mohenjo-daro and the Indus Civilization* shows the proportionally large size of these panniers.

[3] The second example was too badly broken to be photographed.

[4] *Mohenjo-daro and the Indus Civilization*, pl. XCV, 10.

have found nothing that they could represent, save possibly certain domed pieces of copper (Pl. CXL, 54, 66). These are, however, comparatively small. A nude clay figurine with a cincture of similar medallions, which may represent a deity, has lately been unearthed at Vinča.[1] Certain pottery figures of uncertain date bought in India also wear a belt of medallions.[2]

It is not certain whether the girdle that sometimes held these skirts in place was made of beads or of some other material. Beads seem more probable as spacers are apparently represented on the mutilated figure in Pls. LXXII, 5, 6 ; LXXV, 5. A girdle of beads that closely corresponds with the appearance of the girdles on the figurines has actually been found at Mohenjo-daro.[3] As is seen in two of the figurines, one from the upper and the other from the lower levels, the girdle was sometimes fastened with a bow in front (Pls. LXXII, 6 ; LXXV, 17).

Dr. J. H. Hutton has called my attention to the very abbreviated skirts represented on modern figurines from the Naga Hills, Assam, which are very like those worn by the pottery representations of the Mother-goddess of Mohenjo-daro. Some of the skirts of the Assamese figurines are supported by wide girdles apparently made of several strips of material with a rosette-like fastening in front which closely resemble those of Mohenjo-daro (Pl. LXXII, 5, 6). A broad strap around the shoulders and crossed in front also appears on both the Indus Valley and the Assamese figurines (Pls. LXXV, 20 ; LXXVI, 15 ; etc.).

The quaint figure of a woman (Pl. LXXV, 9) found at the level —23·5 ft. wears a very substantial over-garment or blanket, up to the neck at the back and cut away in front to expose the breasts. Doubtless, a warm covering was as badly needed in the winter in ancient Sindh as it is now, though this is the first time that we have found a figure so attired. Possibly No. 17 in Pl. LXXVI is also wearing a cloak.

A scarf-like band represented round the neck of some of the figurines, usually males,[4] appears to have been made of some woven stuff, for it hangs loosely and generally to one side (Pl. LXXVI, 22). In most cases this scarf, which occasionally is double, is fastened close to the ends by a brooch or button (Pl. LXXVI, 15). This scarf may, perhaps, have been a badge of office, although it is worn by the obviously grotesque figure in Pl. LXXV, 13, and also the horned deity in Pl. LXXII, 7. Possibly, it was the emblem of a certain sect.[5] The figure 24 in Pl. LXXVI also appears to be wearing a scarf, though most of it is now missing, and also the figure Nos. 23 and 24 in Pl. LXXIV. A scarf of another kind is worn by the curious figurine in Pl. LXXV, 20, with its ends incised just in the same way as are the hands below them.

[1] See article by Prof. Vassits in *Illust. London News*, Nov. 1, 1930, p. 753, figs. 11 and 12. This Danubian specimen, however, is of later date.

[2] Coomaraswamy, *I. P. E. K.*, 1928, 1, fig. 5.

[3] *Mohenjo-daro and the Indus Civilization*, pl. CLI, b.

[4] I assume that figure 22 in Pl. LXXVI is a female, despite the immature breasts.

[5] This scarf is painted in red on a nude male figure found in a previous season, *Mohenjo-daro and the Indus Civilization*, pl. XCIV, 11. For a Sumerian example see Zervos, *L'Art. de la Mésopotamie*, pl. 50.

Features.

The eyes of the figurines are represented by little flat pellets of clay which are generally slightly oval in shape, but sometimes very elongated like an almond. This method of representing the eyes of clay figurines was not very common in the ancient world.[1] Even in the better made figurines of Mohenjo-daro the pupil of the eye is rarely incised, as it is so commonly in the early Sumerian examples; but since we know that some of the figurines were painted, it is possible that the pupil was shown in colour. Incised pupils are, however, seen in No. 2 of Pl. LXXII; and in a certain type of head found only in the lower levels (Pl. LXXVI, 2-4, 8, 9), which was made with the aid of a mould, merely the outlines of the eyes were incised.

The nose seems never to have been an addition; it was formed simply by pinching the clay up, leaving the shallow depressions made on either side by finger and thumb to give character to the face and to provide a suitable setting for the eyes. Curiously enough, the nostrils are rarely represented by holes, as in many of the model animals.

In some of the coarser figurines of both upper and lower levels, the mouth is merely a rough incision; but in those of better make a narrow strip of clay was let into this incision and grooved along the middle to represent the lips. In some of the terra-cotta figurines of the First Thessalian Period also, the mouth was represented in this way, but I am not aware of its occurrence elsewhere.[2] The effect produced is undoubtedly very realistic.

Except on some of the moulded heads, which are all of Early date, a tool was very seldom employed to accentuate the features. In some cases, however, the navel is represented by a shallow hole (Pls. LXXV, 1, 17; LXXVI, 22, 24). The exceptionally well finished figure No. 5 in Pl. LXXV has the navel represented by a pellet of clay incised in the middle. The indefinite scratches on the arm and part of the body of Pl. LXXIII, 12, seem to be accidental.

It is very seldom that we find the arms or legs of a figurine intact; naturally they easily broke off. Whether of male or female, the feet are practically always set fairly close together and the arms hang down at the sides, save when holding an infant or engaged in some task (Pls. LXXII, 8-10; LXXV, 5, 21). Even in the better modelled figures, no attempt was made to represent the fingers and toes; the limbs invariably terminate in blunt points or have slightly flattened extremities, a feature that they have in common with the archaic figures of other countries. There is one exception, however, in Pl. LXXIV, 23, 24.

Ears are never represented, except the animal-like ears associated with horns (Pl. LXXVI, 2-4, etc.). Indeed, in the better-class figurines the many ornaments and elaborate head-dress made it impossible to indicate the ears successfully.

[1] The use of round or oval pellets for eyes may have originated in the Middle East, although it was not common there. In the curious eyes of the very early pottery figures of Ur, it is possible that strips of clay were added and then smoothed over so that it is now difficult to distinguish the results from modelling: Woolley, *Antiquaries Journal*, vol. X, pl. XLVIII. Otherwise, the addition of pellets for eyes began in Sumer c. 2,600 B. C., about which time they are found in India. In Egypt pellets for eyes are not known until about the Twelfth Dynasty, when they appear on roughly made figures which Petrie suggests were foreign importations, perhaps from Babylonia; *Objects of Daily Use*, p. 60. In Greece, pottery figures with pellets for eyes first appear in the First Thessalian Period; *Camb. Anc. Hist.*, vol. I (plates), pp. 112, 113 (a and b).

[2] *Ibid.* The date of these figurines seems to be between 3,100 and 2,600 B. C.

Hair.

I have already suggested that the high head-dresses of some of the female figurines may be hair that was stiffened in some way or worn over a support. If so, it was by far the commonest way of wearing it. That there were variations, however, is evident from some of the statues found in previous seasons and also the figurines in Pl. LXXVI, 10, 11, 12, both of which come from the lower levels. In No. 10 the hair was worn in a pigtail hanging down the back; what may be a twisted lock of hair is carried down from the forehead to the side of the head and round to the back in Pl. LXXVI, 21. In No. 11 in the same plate there is a knot at the back of the head, beneath which a part of the hair hangs down; whereas in No. 12 it is carried across in a thick rope from one side to the other.

Men sometimes wore their hair in a thick, flat rope looped at the back and secured in place by a fillet (Pl. LXXII, 8–10) or carried to a point at the back of the head, as in Pl. LXXV, 11. In Pl. LXXVI, 15, the hair was represented in a coiled mass at the top and cartwheels on each side of the head. The coiled strips of clay which represented the hair are unfortunately missing, but the impressions left by them still remain. This way of wearing the hair is seen on an almost perfect head found prior to 1927.[1]

The broad beard worn by the nearly perfect figure from the upper levels seen in Pl. LXXII, 8–10, looks so stiff as to have been unguented. A beard very similar save for being coiled inwards at the tip is worn by another figure from the upper levels (Pl. LXXIV, 23, 24), and also by some of the model animals (Pls. LXXXVII, 18; LXXVIII, 7).[2] Both the figures appear to be images of a deity and it may be that this form of beard was connected with a certain god. Certainly, the stone statues that have been found definitely show that beards were worn by the better class inhabitants of Mohenjo-daro, but on these statue heads the beard is invariably short and quite unlike those on the pottery figurines.[3] A short, tufted beard which may also be the mark of a deity—it certainly is in Pl. LXXIV, 25—is worn by the well made, but imperfect figure No. 18 in Pl. LXXVI. The beard of No. 3 in Pl. LXXVI, is closely cropped.

Jewellery.

The heavy-looking bands round the necks of the female figurines were more probably intended to represent strings of beads than strips of woven material—a supposition which is supported by the drop-like pendants which so commonly hang from them. It is curious how often these pendants are represented, for comparatively few actual specimens have been found in proportion to the large numbers of beads. It will be seen that sometimes male figurines also are represented as wearing jewellery (Pls. LXXII, 7; LXXIII, 1; LXXVI, 15); but such cases are exceedingly rare, possibly because male figurines are themselves uncommon at Mohenjo-daro.

Earrings are very rarely represented, probably because they were comparatively small, so that they would have been quite hidden by the elaborate head-dresses worn unless they were of unusual size (Pl. LXXIII, 6, 7)—if indeed the circular strips there illustrated were intended to represent earrings.

[1] *Mohenjo-daro and the Indus Civilization*, pl. XCV, 25.

[2] *Cf.* the head of a male figurine from Susa I; Contenau, *Manuel d'Archæologie Orientale*, p. 360, fig. 265.

[3] *Mohenjo-daro and the Indus Civilization*, pls. XCVIII, XCIX.

A peculiar form of ornament which was carried high up the neck (Pls. LXXV, 3, 9; LXXVI, 7) appears to have been in fashion in the earlier periods. It may have been made of metal rings rather than of spiral wire, and it was clearly braced at intervals. It certainly looks very uncomfortable, of whatever material it may have been made, and it recalls the lace and whalebone atrocities that were worn some twenty years ago in England and the high coiled metal collars of the women of the Shan tribes in Burma.

That some of the figurines are very much overloaded with necklaces is seen in Pl. LXXV, 17, to which Nos. 10 and 14 are very close second and third. It will be noticed that tools were used freely in the representation of jewellery, which was not the case with the figures themselves. A necklace is painted on the figure of a deity (Pl. LXXVI, 5)—a very rare procedure at Mohenjo-daro; in fact, we have only found one other example as yet.[1]

In Nos. 5 and 10 in Pl. LXXV, armlets and bracelets of spiral wire are represented. We have not yet found any actual specimens, though finger rings of spiral wire are not uncommon. Perhaps this form of bracelet was fashionable only in the earlier periods and the later occupants of the city preferred the simple bands and rings of metal and other materials, of which we now have many examples (Pls. CXXXVI; CXXXIX; CXL).

The anklet represented in No. 10 in Pl. LXXV may have been beads or embossed metal, and it is probable that if the legs of other figurines had not been broken off we should have found other very similar ornaments.[2] The anklet seen in Pl. LXXIII, 5, is quite a different pattern and more will be said about it later.

Nudity.

The nudity of the figurines need not surprise us, for it is common to most archaic figures. In fact, what are generally regarded as images of an Earth- or Mother-goddess are practically always nude, save for quantities of jewellery, a wide girdle and their remarkable head-dresses. The wide girdle, or brief skirt, may, indeed, be regarded as a transitional stage between a time when no clothing was the usual thing and a period when garments were regarded as adding dignity.[3] This process is perhaps also illustrated by certain clay figures of Danubian II date which wear some sort of apron, whereas those of the previous period are entirely unclothed.[4]

Seated Figures.

Little clay figurines (Pls. LXXIV, 14, 16) seated with the hands clasped round the knees are now familiar finds. In all probability they are the work of children, for they are never represented as wearing ornaments and, moreover, are very roughly modelled. The attitude is so very natural, especially among children, that we can understand its popularity both in the Indus valley and in other ancient countries. Seated terra-cotta figures of Neolithic date from

1 *Mohenjo-daro and the Indus Civilization*, pl. XCIV, 11.

2 *Op. cit.*, pl. XCV, 26, 27.

3 This was not the case in Babylonia, where entirely nude figures prevailed down to very late times.

4 Childe, *Danube in Prehistory*, p. 70. It does not, of course, follow that the women of Mohenjo-daro themselves wore so little clothing. The lack of clothing of the goddess may be accounted for quite simply by religious conservatism.

northern Greece,[1] and the stalagmite and ivory figures of Crete are very similar.[2] Also somewhat akin to these figurines are certain stamp seals from Egypt—of later date, however,[3]—but in these a finger of one hand is raised to the mouth as a sign of youth. These comparisons are, of course, only made as a matter of interest; that they establish any connection with the countries concerned is quite unlikely in view of the naturalness of the attitude. We have found none of these seated figures in the lower levels, unless No. 14 in Pl. LXXVI is a broken specimen; the attitude of this figure is, however, not quite the same.

Dancing Figures (?).

Figures 1 and 8 in Pl. LXXIII, which come from the upper levels, are of great interest in that the same curious posture of the legs occurs in both. That this attitude is not accidental is evident from similar figures unearthed from the lower strata (Pls. LXXV, 2, 13; LXXVI, 6). Whether this posture was part of a ritual dance we do not know, but that such dances did take place is shown by the figures on a faience plaque (Pls. XCI, 12; XCII, 1). The dance, of course, is often intimately connected with religious observances and these two clay figures may be cult images rather than the handiwork of children. On the other hand, figure 13 in Pl. LXXV may be an attempt to represent a dwarf or a deformed person, which suggests that perhaps dwarfs or deformed people were kept for amusement as in ancient Egypt. The figures are not unlike the achondroplastic dwarfs of ancient Egypt in the disproportion between the size of the trunk and limbs. Dr. Rueffer has remarked that both in early Egypt and medieval European times these dwarfs were in demand for looking after pet animals and even of valuables, the latter on the principle that they could easily be identified if they ran away. From the way, however, in which the short stumpy legs are bent, the Indus Valley figurines of this type seem to have been dancers.[4] The object clasped to the breast by the bandy-legged figures in Pls. LXXV, 2; LXXVI, 6, may be a drum that was hung round the neck. It is uncertain whether No. 11 in Pl. LXXVI, obviously the figure of a woman, is represented as dancing or not. The arrangement of the hair recalls that of the bronze dancing girl already illustrated,[5] but otherwise there are no points of resemblance between the figures. In No. 11, the legs do not appear to be deformed; they are, indeed, well covered with adipose tissue.

The bronze figure in Pl. LXXIII, 9–13, is much less crude in workmanship, and it shows that conventional postures which were probably of religious significance were already being adopted. In India to-day, certain attitudes in dancing are quasi-religious in character.

Horned Heads.

With the horned deity, of which figurines are seen in Pls. LXXII, 7; LXXVI, 5, we were already acquainted from a number of pottery masks,[6] others have

[1] Zorelia; dated approximately to 2,500 B. C.; *Liv. Ann. Arch. and Anthrop.*, vol. I, pl. LI.

[2] The stalagmite examples of Early Minoan date; Evans, *Palace of Minos*, III, pp. 446-47, figs. 310-11, and suppl. pl. XXXVII.

[3] Glanville, *Journ. of Eg. Arch.*, May 1931, p. 98, pl. XII, figs. 1-6. They are dated to the First Intermediate Period.

[4] Rueffer, "On Dwarfs and Other Deformed Persons," *Bull. Soc. Arch. Alex.*, No. 13, pp. 3-17, pls. I–V.

[5] *Mohenjo-daro and the Indus Civilization*, pl. XCIV, 6–8.

[6] *Ibid*, pl. XCV, figs. 1, 2.

since been found in the lower levels (Pl. LXXVI, 1–4). From No. 7 in Pl. LXXII there can be little doubt that these horns were smooth and round, and curved upwards and inwards; but whether they were intended to be those of the short-horned or of the Brāhmani bull, both of which appear on the seals, we cannot say with certainty. As they seem not to have been very long when complete, they more probably represent those of the short-horned bull.[1] The curly horns of the mask in Pl. LXXVI, 2, are, however, quite a different type and may be those of a goat.

That figure 5 in Pl. LXXVI is that of a woman is shown by the prominent breasts, but it is doubtful whether the erections on the top of the head are horns or not. If they are, this figure is the first that we have found in the round of a horned female. There are two pairs of "horns", of which the hinder pair have lost their tips, and a fracture at the back of the head suggests that there was once a fan-shaped projection like that usually worn by the female figurines. The front right-hand horn is remarkably bird-like in form, and so is the other despite a part of it being missing. Possibly this figurine was intended to have four birds upon the head, which would most likely have been doves—a not inappropriate emblem to be worn by a figure that probably represented a Mother-goddess. This head-dress appears to have been an afterthought on the part of the modeller, for it is very roughly made and not nearly so well finished as the rest of the figure.

Masks.

The three horned masks (Pl. LXXIV, 21, 22, 25) which come from the upper levels have their counterpart in one (Pl. LXXVI, 1) found at the level 13·4 ft. below datum. But the masks found at still lower levels, such as Nos. 2, 3, 4 in Pl. LXXVI, are decidedly different in their technique. The early examples have very oblique Mongolian eyes which were very carefully touched up. They are undoubtedly superior in their workmanship and can readily be distinguished from the masks of later date in the setting of the eyes and other particulars. These masks will therefore prove invaluable in dating other sites in which they may be found.

Whether from the early or later levels, these masks were all made in a mould; they are hollow at the back with holes at the edges for tying them on—but to what it is difficult to say. They may have served to ornament some wooden structure, as did the metal heads on a chariot found at Ur. Or perhaps they were fastened to the doors or walls of a house to avert ill-luck, like the bucrania used for that purpose in various parts of the world.[2] They may even have been used to ornament robes worn on special occasions. In any case, the back was not intended to be seen and no care was taken in the finishing of it, except for the edge which is always sufficiently plane to enable the mask to lie snugly against a smooth surface.

I have already compared these horned masks with metal masks found at Kish, Ur and Susa. But horned figurines of clay are known as far west as Serbia,

[1] We do not yet know whether there was any distinction made between the attributes of these two types of bulls. The short-horned type is, however, always depicted in a fighting attitude, whereas the Brāhmani bull looks rather a placid animal. Both appear to have been garlanded on occasion.

[2] I am myself inclined to the view that they served as household amulets. Frankfort reports similar heads in stone from Khafaje, a pre-Sargonid site near Tell Asmar; *Ann. Bibl. Ind. Arch.*, 1932, p. 10.

with both animal and human heads.[1] They also occur in Crete and Egypt. When both the head and the horns are those of a bull, these figurines have been thought to represent masked worshippers, but of this I am rather doubtful. Certain distinctions have been drawn between "bull-men" and "men-bulls". The figurine in Pl. LXXII, 7, is certainly of the latter type, and I regard it as representing a deity whose emblem was the bull, and who may have had the same attributes as the horned figures of Kish and Ur. Even at the present day horns are worn in some parts of the world in ritual dances and other ceremonies; but until we have evidence that they were actually so used by the Indus Valley people and the Sumerians it would be well, I think, to regard these horned figurines and masks solely as representing deities.

Double Head.

The double Janus-like head (Pl. LXXVI, 8), from a low level 22·1 ft. below datum, is quite new to us. It consists of two heads, back to back, with a projection between which may represent either hair or the well-known fan-shaped head-dress. The faces are exactly alike and seem to have been made in the same mould. Their resemblance in features and general technique to the masks, Nos. 2-4 in the same plate, suggests that this doublefaced head represents the same race. I do not know of anything of early date anywhere else quite like this two-faced head. It recalls the figure on a seal-impression from Kirkuk of the god Marduk with two animal heads.[2] More like it, is a bearded double-headed figure of stone illustrated by Meissner and dated to the time of Gudea.[3] We cannot, of course, state that the figure from Mohenjo-daro is a representation of Marduk—nor even of a god with similar attributes; but it should be remembered that Marduk was a Sumerian god of very early times and that his emblem, the shovel, frequently appears on the pottery of Susa I.[4] [5] An exactly similar sign to Marduk's symbol also appears on the seals of Mohenjo-daro, as in Pls. LXXXIII, 15, 26; LXXXIV, 75; LXXXV, 123. In ancient Egypt, the god Amūn is sometimes represented on hypocephali with two human heads, of which one is turned to the right and the other to the left. These amulets, however, are of very late date.[6]

Owing to the likeness of the faces to each other, we cannot suppose that it was intended to represent two different aspects of a god or goddess;[7] nor for the same reason is a fusion between male and female deities suggested. This broken figure is, however, reminiscent of the multi-faced images of some present-day Indian deities. That this double head once had a body is evident from the fracture at the base of the neck.

[1] Article on Vinča by Professor Vassits. *Illust. Lon. News*, Nov. 1st, 1930, p. 752.

[2] Smith, *Early History of Assyria*, p. 326, fig. 18.

[3] *Babylonien und Assyrien*, II, Abb. 15.

[4] I am indebted to Mr. C. J. Gadd for the above two references. He has also drawn my attention to an article on the Janus-faced god in *Archiv. für Orientforschung*, vol. V, 185, which I have not yet seen.

[5] Frankfort, *Archæology and the Sumerian Problem*, Oriental Inst., Univ. of Chicago, p. 21.

[6] For an illustration, see Wiedemann, *Religion of the Ancient Egyptians*, p. 300, p. 298, fig. 72.

[7] It is difficult to say whether these are male or female heads. The head-dress provides no indication as it was worn by male and female figures alike. See seal No. 420.

Nursing Mothers.

The nursing mothers in Pls. LXXV, 7, 12; LXXVI, 13, all hold the baby to the left breast; the right breast is used in Pl. LXXII, 2. In Nos. 7 and 12 in Pl. LXXV, the left hand is held to the mouth as if counselling silence, though there is probably some other meaning to this gesture as a feeding babe would hardly be asleep. Some of the infants are barely recognisable as such, No. 12 being represented by a mere lump of clay. The position of the child in No. 7 astride the mother's hip is the usual mode of carrying a child in the East at the present day. These figures are more common in the lower than in the upper levels. In all probability they were votive figures placed in shrines either to obtain offspring or as thank-offerings for children. They are of two types, namely, those of ordinary shape, as No. 13 in Pl. LXXVI, and those with hollow, squat and swollen bodies which may represent pregnancy, as Nos. 7 and 12 in Pl. LXXV. This latter type of figurine, whether carrying an infant or not, is almost as frequently found as the former.[1]

Crawling Child.

The little image of a crawling child (Pl. LXXVIII, 10) from one of the upper levels has its exact counterpart in No. 25 in Pl. LXXVI, which was found at the level 17·3 ft. below datum. In both cases the child is a boy. These figures also are too well made to have been modelled by children and may have been votive offerings. That boys as well as girls were adorned with jewellery in the early stages of their life is indicated by the ornaments that both these little figures wear.

Figure on Stand.

The figurine No. 10 in Pl. LXXVI stands on a little plinth, which is a very unusual feature in human figurines though sometimes found in the models of animals (Pl. LXXIX, 31). No. 2 in Pl. LXXII has traces of a pedestal behind it, by which it was once supported. As the legs of the human figurines very rarely allow of their standing upright without support and there was no arrangement by which the feet could be fastened to a stand, it is probable that they were placed against the wall of the room or shrine. This would explain why the figures are only roughly finished and why the jewellery and ornaments, and sometimes even the kilts, were rarely carried round to the back.

The smallness of the waist in No. 5, Pl. LXXV, is exceptional. Though the waist is accentuated in most of the figures, it is not represented as unduly small, nor, as a rule, is the width of the hips exaggerated. This figurine is, however, better modelled than most and it may have been made for a wealthy client. If this were so, it is perhaps permissible to infer that the better-class women of Mohenjo-daro regarded a small waist as a mark of beauty, though there is no evidence that they constricted them in any way.

Gamesmen.

The three little figures, 12, 15, 16 in Pl. LXXXI seem to be gamesmen, appropriately made in human form. Possibly No. 7 in Pl. LXXVI was used for the same purpose, for it stands well and is, moreover, unlike any of the other figurines in appearance.

[1] Jewellery is very seldom worn by figures of this type.

Faience Figures.

Nos. 20 and 23 in Pl. LXXVI are both made of a fine, soft porous paste, in the one case white and the other cream in colour, which was doubtless intended to be glazed. No. 20 is exceptionally well modelled with pendant breasts quite unlike those of the clay figurines. As is usual, the male figure, No. 23, is quite nude; although it is unfinished, it was obviously never intended to be clothed. A small hole, where the right arm of this figure should be, shows that sometimes the limbs of these faience figures were pegged to the body owing to the softness of the material of which they were modelled. Though human figurines made in faience are rarely found, model animals are more numerous. Indeed, female figurines in faience are exceedingly rare, and No. 20, imperfect as it is, is a valuable piece.

Dating.

I find it impossible as yet to distinguish with any degree of certainty between the figurines from the upper and lower levels respectively; though, as I have already pointed out, the Mongolian type of head (Pl. LXXVI, 2–4, 8, 9) is distinctive of the lower levels and the figures with panniers are inclined to be late rather than early in date. We must, in fact, await further deep digging and the collection of more specimens before we can make any definite pronouncement in this matter. Though figurines are certainly more often found in the upper than in the lower levels, in view of the destruction that has taken place in the lower strata in the search for bricks it may well be that large numbers of figurines were removed or smashed.

HUMAN FIGURINES.

Upper Levels.

Plate LXXII.—No. 1 (DK 3406). Pottery; no slip. 2·2 ins. high. The prominent nose was made by pinching up the front of the pellet-like head so as to form a slight hollow on each side, in which the eyes made of circular flat pellets were placed. The mouth is a mere cut. The back of the head was also pinched out to simulate a thick rope of hair, which passes round to the right side of the head so that the end can just be seen in the illustration. The breasts are represented by pellets of clay. The arms and the rest of the body below the waist are missing. Locus: Bl. 4, rm. 10. Level: – 8 ft.

No. 2 (DK 6603). Pottery, with a red slip. 2·88 ins. high. This roughly modelled figure represents a very matronly woman nursing an infant at her right breast. The figure of the infant has, however, almost entirely gone and only a portion of the legs remains. The mother had originally two footless pointed legs like the one seen in the photograph, but as they could not possibly support her properly, a pedestal was placed behind them, with the help of which despite its being broken the figure still stands upright. This is the first figurine that has been found with such a support. The head is very roughly modelled, a mere pinch sufficing to form the nose; and the usual round pellets serve as eyes, though an indentation in the centre of each to represent the pupil is a very unusual feature. Possibly this was a votive figure intended to be placed in a shrine, either for the purpose of obtaining offspring or in thanks for the arrival of one. Locus: Bl. 9, ho. VII, rm. 17. Level: –10·5 ft.

No. 3 (DK 12017). Pottery, once with a red slip. 1·92 ins. high. This very roughly fashioned figure is of interest because the left leg, part of which

is unfortunately missing, was raised to suggest either walking or, more probably, dancing. The head is flat and the eyes are represented by two slightly elongated discs. There is no nose to speak of, and no attempt at a mouth. The arms are merely added strips of clay, and the figure is not carrying something under the arm as appears at first sight. Locus: Bl. 9, ho. X, rm. 81. Level: – 6·7 ft.

No. 4 (DK 3602). Pottery, with a red wash, most of which has now disappeared. 3·05 ins. high. The eyes are oval pellets set fairly straight. The mouth was formed by inserting a strip of clay into a wide cut and then incising a line on this strip. A close-fitting collar is worn, made of two bands of material from which hang three round pendants. Another pendant hangs from a double necklace below the collar. The head-dress is of the elaborate nature that is always associated with this type of figurine, namely, a high, fan-like erection on the back of the head secured by a number of cords or bands of material. This figurine, however, seems never to have had the usual pannier-like ornaments (*Cf.* Pl. LXXIII, 4, 6), and the curious cones which are frequently seen issuing from the coif in front of the ears were, unfortunately, broken off. Locus: Bl. 1 (Palace), court III. Level: – 7·2 ft.

Nos. 5 and 6 (DK 5406). Pottery, with traces of red slip. 4·3 ins. high. This is a figure of unusual size and finish, and the absence of the head and limbs is much to be lamented. It wears the abbreviated skirt or loin-cloth that is the invariable garb of this type of figurine, but shows certain new details of great interest. From these two illustrations it is evident that the short skirt is ornamented along the top with a row of bosses, but of what material these would actually have been made we do not know. Similar knobs or bosses have been seen before entirely to cover a skirt, so that I compared the garment with the *kaunakes* worn in early Sumer; but these knobs may have been made of metal.

Below the row of bosses on this particular skirt there is a belt composed of five cords or strips of material fastened in front by a very obvious bow. This girdle may possibly represent strings of beads, as traces of what appear to be dividers are seen in several places on it, though the strips of clay which represented them probably became detached at the mutilation of the figure. We have evidence that such bead girdles were actually worn in the very fine example found prior to the season 1926-27 and illustrated in the book on the excavations of that and former seasons.[1]

This matronly figure was evidently carefully made and well ornamented. It is clear from fig. 6 that the breasts which are missing were of large size. Locus: Loop Lane, between Bls. 12 and 12A. Level: –11·3 ft.

No. 7 (DK 5565). Pottery, once coated with a red slip. 3·33 ins. high. The eyes are as usual flat, elongated pellets, the mouth an incised strip of clay set in a deep cut. A short necklet, from which four ornaments hang in front, appears to represent two strings of beads. The long scarf round the neck, with its two ends apparently fastened by a brooch, hangs so loosely that it must represent some kind of woven material. This figurine, obviously that of a male, wears the horns of a bull. There are no ears and though the figure was evidently carefully made there is a general absence of detail. Locus: Long Lane, bet. Bls. 10 (III) and 12. Level: –11·2 ft.

Nos. 8, 9 and 10 (DK 3509). Pottery, coated liberally with a red wash. 5·8 ins. high. This male figure is complete, except for the feet and a small portion

[1] *Mohenjo-daro and the Indus Civilization*, pl. CLI (B).

of the beard. It is very carefully modelled, save the hands which are merely flattened extremities. The oval eyes were set with a slight slant upwards towards the bridge of the nose. The mouth is indicated in the usual way and a very prominent, broad, projecting beard is a distinguishing feature. The hair is represented as a broad flat mass drawn from the forehead in a loop with the end secured by a fillet, which when the figure was complete passed across the forehead. Part of the genital organs is missing. The figurine is covered in many places with black patchy deposits which are, however, of too coarse a nature to have been another slip applied over the red wash.[1] Possibly the figure was anointed on ceremonial occasions with butter which has carbonized. If this be the image of a deity, as seems probable, there may be some significance in the upturned head, for the same posture occurs on a similar figure from Mohenjo-daro.[2] It can hardly, I think, be an accidental pose since we have two examples, both carefully modelled. Locus: Bl. 9, ho. III, rm. 30. Level: – 4·9 ft.

Plate LXXIII.—No. 1 (DK 5560). Pottery, with traces of red slip. 3·3 ins. high. Slightly oval eye-pellets and the mouth merely a rough indentation. Three pendants hang from the short necklet. Head smooth behind, with no attempt to represent the hair.

This male figure[3] had remarkably short, bandy legs, but whether this was intentional or not it is difficult to say; though the ends of both legs are broken off, it is clear that very little is missing from the longer one. Locus: Bl. 12, ho. V, rm. 95. Level: –11·7 ft.

No. 2 (DK 10874). Pottery, with no signs of slip. 3·44 ins. high. Apparently hollow. Though one of the elongated eye-pellets is missing, the other is set horizontally. No indication of a mouth. As is usual in this type of figure, a fan-shaped head-dress is worn.

This is one of the figures with swollen body which are now so well known, though it is still uncertain whether the swollen condition betokens pregnancy or steatopygy, for these figures are always very roughly made. They may even have been the work of inexperienced modellers, for they were possibly made at home as votive objects with the idea of promoting fertility. Locus: Bl. 8A, rm. 44. Level: – 4·8 ft.

No. 3 (DK 5063). Pottery, with a light red wash. 3·1 ins. high. Fan-shaped portion of head-dress badly damaged, but the well-preserved panniers have soot-like marks inside. A medallion above the forehead holds the bands supporting the panniers in place and apparently there was once another medallion attached in front of the pannier above the left ear. Traces of white plaster still remain in the interstices of the ornamentation. The oval eye-pellets are horizontally set and the mouth carefully shaped. There are the usual tight necklaces, but nothing remains below them. Locus: Bl. 10, ho. III, rm. 64. Level: – 9·7 ft.

No. 4 (DK 3574). Pottery, with traces of a dark red slip or wash. 3·1 ins. high. On the head of this female figurine there are patches of a white concretion which looks like the remains of a stucco covering. If it were thus originally plastered, it would be like No. 3 above. This white coating now only remains

[1] In a similar manner to the dark-coloured slip that sometimes overlies a red slip on a certain type of pottery (see Pl. LV, 26–8).

[2] *Mohenjo-daro and the Indus Civilization*, pl. XCIV, 4

[3] The sexual organs are now missing.

around the face, and the stucco may have been quite local. The eyes are very elongated and horizontally set, the nose very prominently pinched up. The mouth is indicated in the usual way by indenting a strip of clay to form the lips. The fan-shaped portion of the head-dress is more than usually upstanding, and the pannier-like objects on each side of the head are partly hidden from the front view by various supporting bands which were ornamented by pellets of clay, intended perhaps to represent medallions. The ends of two of these strips are brought so far forward on each side of the face as partially to obscure the features. The interiors of both panniers are stained black, a point which I have already discussed. This is a somewhat roughly made figurine, though evidently the work of experienced hands. Locus: Bl. 7, ho. II, rm. 89. Level: – 7·3 ft.

No. 5 (DK 3400). Bronze. 1·15 ins. long. A beautifully modelled foot which may have belonged to a statue similar to the one seen in Nos. 9-11. The curiously shaped anklet is a pattern that I have myself seen in the Simla hills, and is made of silver.[1] The ankle is if anything a little too slender for the size of the foot, but this may have been a convention, for the limbs of both the bronze statues found at Mohenjo-daro are remarkably thin and attenuated. Locus: Bl. 9, ho. 11, rm. 8. Level: – 4·3 ft.

No. 6 (DK 4365). Pottery, with traces of red wash, which on the back of the figure was not continuous but applied in streaks. 4·4 ins. high. The oval eyes slant slightly upwards towards the bridge of the nose. Mouth and nose made in the usual way. The fan-shaped head-dress is worn, but the panniers on either side, supported by two bands round the forehead, are very rudimentary. In the centre of the forehead there is a cone-shaped ornament upon the supporting bands which recalls the hollow objects of gold, silver, copper and faience that have been found from time to time at Mohenjo-daro. A circular ring of clay on each cheek of the figure probably represents an earring brought well to the front. This figure never had a necklace, a very unusual omission. The usual abbreviated skirt is worn. Locus: First Street (4). Level: – 5·2 ft.

No. 7 (DK 3887). Pottery, with a red slip. 2·48 ins. high. There are traces of stucco on the double necklet with four pendants, and also olive-green paint. This badly mutilated figure is roughly made and it has lost nearly all its ornaments. A high head-dress with panniers appears to have been worn: and earrings, of which one alone remains, show beneath the coif. Locus: First Street (10). Level: – 9·5 ft.

No. 8 (DK 8042). Pottery, with a dark red slip. 3·65 ins. high. Oval eye-pellets and the mouth a mere dent. No attempt to represent either hair or head-dress. Genital organs well defined, and show no trace of circumcision. Navel marked by an unnecessarily deep hole. Roughly made, though great care was taken over certain details. Though the right arm is complete, no attempt was made to represent a hand, and with very little missing it is clear that both the feet were similarly undefined. The curious attitude of this figure cannot be considered accidental since the posture of the legs is the same as in No. 1. Conceivably this figure is represented as performing some kind of dance, a suggestion to which the outstretched arms lend support. Locus: Bl. 7, ho. IV, rm. 70. Level: – 11·4 ft.

[1] Anklets of practically the same shape are worn by most of the figures in a fresco at Knossos dated to the M. M. III (a) Period; Evans, *Palace of Minos*, II, pp. 723, 726, figs. 450, 454. Though of later date than this example from Mohenjo-daro, the Cretan anklet may prove to have come down from earlier days.

Nos. 9-11 (DK 12728). Bronze. 5·2 ins. high. An exceptionally well-modelled figure of a dancing girl which, unfortunately, has suffered badly from corrosion. In No. 9 the figure is seen just as it was recovered from the soil and before being cleaned by Dr. Hamid. This interesting figurine is similar in type to one found during the season 1926-27 by Rai Bahadur Daya Ram Sahni, and though the posture is not exactly the same[1] the many points of similarity make it seem likely that both figures were made by the same maker.

The figure now published stands with the feet close together and the left arm, which is heavily loaded with bracelets, has the hand on the hip. The right arm is brought in front of the body with the hand curved slightly upwards as if to hold something. The hair appears to have been tied at the back of the head with a part hanging down, but the details are obscured by corrosion. There is a very distinct bow, however, at the nape of the neck. There are no indications of anklets being worn. A tang below the feet served to affix this little figure to a stand.

From its general likeness to the other bronze figure found, this later one almost certainly represents a dancing girl, nude save for a few ornaments and in one of the conventional postures of her art.[2] She stands with head erect, and I have no doubt that were her features well preserved she would wear the same disdainful expression that is so marked in the already published statuette. These figures can hardly have represented goddesses, though it must be remembered that through the ages the dance has always been closely associated with religion. They were, more probably, made for purely æsthetic reasons and kept and prized as ornaments. Locus: Bl. 9, ho. X, rm. 81. Level: – 8·6 ft.

No. 12 (DK 12898). Pottery, coloured with light yellow ochre 3·35 ins. high. The figure of a woman with round pellets for eyes, a pinched-out nose, and no mouth. The left arm is held close to the body; the right arm is missing. Though the feet are unbroken, they are merely indicated. This figurine was obviously made by a child who experimented with a knife in several places, principally on the arm, perhaps with the idea of putting in such items as bracelets. Locus: Bl. 9A, ho. VIII, rm. 44. Level: –11·4 ft.

No. 13 (DK 12901). Pottery, coated with a red slip. 3·15 ins. high. This, too, is a very roughly made figurine, also with round instead of the usual oval eyes. The left hand rests on the hip, but all but a small portion of the right arm is missing. A thin flat object thrown over the shoulder may be a piece of cloth, whose ends hang down equally behind and in front. Whether this figure is male or female, it is impossible to say owing to the crudity of the workmanship. Locus: Bl. 9A, ho. VIII, rm. 45. Level: –11 ft.

Plate LXXIV.—No. 14 (DK 12140). Pottery, with traces of cream slip. 2 ins. high. A very roughly made, seated figure. Though the arms are now partly missing, they formerly clasped the knees: The round pellets for the eyes are unequal in size, and the mouth a mere cut. Locus: Bl. 13, north of rm. 7. Level: –10 ft.

[1] *Mohenjo-daro and the Indus Civilization*, pl. XCIV, 6–8.

[2] There are definite names given to the various postures adopted by the dancing girl in India at the present day, each of which has a meaning to the initiated.

No. 15 (DK 8307). Pottery, with a red slip. 2·62 ins. high. The large earrings worn by this figurine of a woman are represented by circular strips of clay.[1] The point of the conical cap which is very like the well-known Phrygian head-gear falls over to the front. This cap was secured to the head by a fillet, or perhaps the band may represent the lower edge of the cap itself. The lack of slip on this part of the figure suggests that it was intended to represent a cap made of a white material. A similar head-covering is worn by several male figurines found in previous seasons,[2] but this is the first to be seen on a female figurine, unless that worn by the woman lying on a bed found some years ago is the same.[3] Locus: Bl. 7, ho. III, rm. 39. Level: – 9 ft.

No. 16 (DK 12006). Pottery; cream slip. 2·2 ins. high. A carefully made figure with round flat pellet eyes and breasts. A knife-cut for the mouth. Locus: Bl. 29, ho. I, rm. 14. Level: – 8·9 ft.

No. 17 (DK 10701). Pottery; no slip. 1·82 ins. high. The badly modelled figure of a man with outstretched arms, the right hand holding an indefinite object. Locus: Bl. 9, ho. XII, rm. 90. Level: – 4·4 ft.

No. 21 (DK 12106). Pottery; no slip. 2·1 ins. high. Hollow mask of a human head surmounted by a pair of horns, now badly broken. Evidently made in a mould as the back is very roughly finished. Two holes at the edge of this mask just below the horns perhaps served to fasten or sew it to something. The almond-shaped eyes have just a suggestion of a Mongolian slant. The mouth is small and the underlip inclined to be thick. This mask is not well finished, nor was the face retouched after leaving the mould. Locus: Central St., south of Bl. 15, rm. 3. Level: – 9·8 ft.

No. 22 (DK 8290). Pottery; no slip. 2·7 ins. high, including horns. A mask with hollow back, made in a mould and roughly finished behind. The horns seem to be those of a bison, and ears are roughly indicated below them by the addition of strips of clay. Two holes for attachment, as in No. 21. Locus: Bl. 9, ho. VIII, rm. 18. Level: – 13·4 ft.

Nos. 23 and 24 (DK 12041). Pottery, with traces of red slip. 4·15 ins. high. A roughly modelled, seated male figure, with the left foot under the body and the right knee raised as in certain of the stone statues found previously to 1927.[4] There is no clothing save a narrow, loosely tied scarf round the neck. The eyes are narrow strips of clay, slanting the opposite way from the Mongolian slope. There is a narrow fillet round the head, and a fracture at the back shows that the hair was perhaps originally carried forward across the top of the head, as in the figure (Nos. 8-10 in Pl. LXXII). A long, flat beard has the end curled inwards.[5] The ears are roughly represented by added pellets of clay with a deep pit for the ear-hole and the nostrils are shown by similar deep holes. The right hand is missing, but it clearly once rested on the knee. The left hand is very indefinite; it apparently rests on the hip. As is usual in the male figures the sexual organs are left uncovered, in contradistinction to the female figurines

1 Whether these are exaggerated, as seems possible, we do not know. No earrings of such large proportions have been found at Mohenjo-daro.

2 *Mohenjo-daro and the Indus Civilization*, pl. XCIV, 4, 11.

3 *Op. cit.*, pl. CLIII, 25.

4 *Mohenjo-daro and the Indus Civilization*, pl. C, 1–6.

5 It is possible that the projecting beard of this figure is copied from that of a goat. This animal, as we know, was sacred at Mohenjo-daro (see seal No. 430 in Pl. XCIV) and may have been intimately associated with a deity.

which always wear a broad girdle though they are otherwise nude. Some attempt has been made to indicate the fingers and toes by means of rough scratches, a very rare feature in the clay figurines of Mohenjo-daro.

It is difficult to say whether this figure is to be regarded as a representation of a deity or of an ordinary inhabitant of Mohenjo-daro. I am inclined to think the former, as all the very few male figures that we have found are nude and wear very much the same kind of beard and long hair carried forward in the same curious way. It can hardly be supposed that the males of Mohenjo-daro were in the habit of going about unclothed; but nudity is connected with sanctity in many parts of India at the present day and it is conceivable that this figure is that of a *saddhu* or priest who was possessed on occasion with certain of the powers of a deity, but was not actually regarded as one. Roughly modelled though this figure is, it is certainly not the handiwork of a child, and the attitude and expression suggest that no ordinary human is represented by it. Locus: Bl. 18, rm. 31. Level: −8·7 ft.

Nos. 25, 26 (DK 13013). Pottery, with traces of a chocolate-coloured slip. 2·98 ins. high. A very fine hollow mask with horns. Made in a mould, with a roughly finished, hollow back. Unfortunately, both the horns are broken, but their bases have a decided cant to the front which suggests that they are those of a bull rather than the bison as in No. 22. Two ears, presumably those of a bull, have broken off just below the horns. There are holes on either side for tying or fastening this mask on to something. The face was left untouched after being moulded except for making two holes to represent the nostrils. The beard is short, and its end projects slightly outwards in Egyptian fashion, unlike the beard of No. 24.

There can be no doubt that this represents the head of a deity, and of one whose attributes seem to have been beneficent, if we may judge from the expression of the face. In fact, in none of the figures of clay or stone hitherto unearthed is such dignity and repose expressed as in this mask. One could wish that the model from which the mould was made might one day be found, for a certain amount of detail has necessarily been lost in its reproduction. Locus: First St., east of Bl. 25, rm. 13. Level: − 9·7 ft.

Plate LXXXII.—No. 4 (SD 2743). Black steatite. Height 1·1 ins. A fragment of what must have been a well cut figure of a woman. Only the back of the head remains, but it was realistically carved to represent flowing hair. If the hair was dressed with cocoanut oil at Mohenjo-daro, as is the general custom for both sexes in India at the present day, it would have presented exactly the appearance of this fragment. Locus: SD Area, Bl. 8, rm. 1. Level: + 4·9 ft.

No. 7 (SD 3008). White steatite. Height 0·58 ins. Three views are given of this little figure of a deity, as it is of especial interest. Curled horns which probably represent those of a ram are worn on either side of the head, and long hair down the back or a head-dress of some kind.[1] I am inclined to the latter view, as the horizontal markings on this appendage would hardly appear in the representation of flowing hair. The Mongolian features of this deity should be noted (*cf.* the figures in Pl. LXXVI, 2–4, 8, 9). Its very small size suggests

[1] They may, however, be the horns of a goat, an animal that, as mentioned above, is frequently associated with the figures of deities.

that this figure was carried as an amulet, though it is not perforated for suspension from a necklace. It could, however, have been sewn to some article of clothing. Locus: SD Area, Divinity St., between Bl. 1 and the Stūpa mound. Level: + 1·7 ft.

Lower Levels.

Plate LXXV.—No. 1 (DK 6182). Pottery, with a red slip. 4·93 ins. high. The typical Mother-goddess, but more carefully made than usual. Breaks on each side of the head show where panniers were once attached. Only the front of the figure is ruddled; the back and head-dress were left plain except where the colour has trickled down. A small hole marks the navel which is not often seen in these figures. Locus: Bl. 1 (Palace), ho. V, rm. 48. Level: –13·4 ft.

No. 2 (DK 8657). Pottery, with traces of a red slip. 2·5 ins. high. This figure, which is perhaps that of a woman, holds to its breast a round object which may be a drum. There is the usual fan-shaped head-dress and a fillet is worn round the forehead. The remaining leg is short and appears to be deformed. A slight, but, unfortunately, broken projection behind the neck suggests that the hair was worn in a knot behind the head. Locus: Bl. 7, ho. VIII, rm. 28. Level: –18·7 ft.

No. 3 (DK 8688). Pottery; no slip. 4·2 ins. high. The now legless figure of a woman holding a child to her left breast. She wears a short skirt and a very high, tight collar,[1] of which the original was perhaps made of metal rings secured at intervals by means of long vertical spacers. Part of the fan-shaped head-dress is missing, but it was evidently decorated with strips of material and medallions. First St. (7). Level: – 22·7 ft.

No. 4 (DK 8542). Pottery; no slip. 4·9 ins. high. Roughly modelled figure of a woman, whose breasts and most of whose ornaments are missing. The conspicuous, ornamented head-dress is unbroken. The legs are indicated by mere lumps of clay and the arms, part of one of which is still attached to the left shoulder, are rudimentary. First St. (5). Level: – 22·2 ft.

No. 5 (DK 7841). Pottery, with a polished red slip. 4·1 ins. high. The very narrow waist and long, substantial arms hanging down at the sides are the outstanding features of this headless figure. On each arm are represented a bracelet and an armlet of coiled metal wire. The usual short loin-cloth is secured at the top by what appears to represent a five-stringed girdle, perhaps like the one found at Mohenjo-daro some time ago.[2] The navel is represented by a flat pellet of clay with a small hole pierced in the centre. The breasts are unusually prominent, and the ornaments very carefully fashioned. The narrow waist, broad hips, prominent breasts and the girdle of strings of beads are all features that appear in Hindu sculptures of far more recent times.[3] Locus: Bl. 1A, rm. 59. Level: – 20·3 ft.

No. 6 (DK 7029). Pottery, with a red slip. 4·45 ins. high. In front of the usual fan-shaped head-dress a cone is worn and also a fillet round the forehead. That earrings were worn is evident from the marks where they have broken off. Fore Lane, bet. Bls 1 and 7. Level: – 15·9 ft.

[1] Superficially like the metal wire collars of the Shans of Burma.

[2] *Mohenjo-daro and the Indus Civilization*, pl. CLI, b.

[3] *Cf.* figure of queen at Karli (late 1st. cent. B. C.): *Encyclo. Brit., 14th Edit.*, Vol. 12, pl. II, facing p. 211.

No. 7 (DK 8432). Pottery ; no slip. 3·91 ins. high. With one arm a baby is held to the left breast ; the other hand is lifted to the mouth or nose, as though the woman were calling to some one or making an invocation. One leg is missing. Possibly this apparently pregnant figure was a votive offering for a shrine. Locus : Bl. 12, ho. I, rm. 1. Level : –15·5 ft.

No. 8 (DK 8051). Pottery; no slip. 2·9 ins. high. The single necklace is unfortunately broken. A cone worn on the top of the head just in front of the head-dress is exactly like that commonly worn by the women of the Punjāb at the present day. Actual specimens of these cones have been found at Mohenjo-daro, in gold, silver and copper, which were evidently kept in place by passing a strand of hair through a ring that was soldered inside at the point. Locus : Bl. 7, ho. V, rm. 51. Level : –12 ft.

No. 9 (DK 8750). Pottery ; no slip. 2·9 ins. high. Figure of a woman wearing a tight collar, possibly of metal rings, and clothed in a heavy mantle hanging from the neck at the back but cut squarely away in front to the level of the breasts. Below the edge of this cloak the border of what was probably the usual short skirt is seen. This is the first figurine that we have found clothed in this way, and it is therefore of importance as illustrating a type of garment that was sometimes worn. Locus : First St. (1). Level : – 23·5 ft.

No. 10 (DK 5797). Pottery, with a red slip. 3·35 ins. high. From its lightness this figure is probably hollow. What may have been a fan-shaped head-dress is broken off, but there seems to have been a flat wing on either side of it, parts of which remain and are much ornamented. On the arms, one of which is unbroken, there are bangles and armlets, and an anklet is seen on the remaining leg. The ornaments worn round the neck may be bands of material studded with sewn-on ornaments. Though there were pendants hung upon them I do not think that it was intended to represent strings of beads, for the anklet is precisely similar. The nostrils are indicated by two small holes, a rare refinement in this class of figure. Locus : Bl. 9, ho. VI, rm. 34. Level : –14·4 ft.

No. 11 (DK 8669). Pottery, with traces of a red slip. 3·17 ins. high. A side view is given to show the pointed coiffure and the fillet round the head. The raised arms and general pose suggest that this figure is intended to be dancing. The legs are, however, extremely short and it is possible that a dwarf is represented. If so, it is not unlikely that dwarfs were kept to provide amusement and that they were taught to dance, as were the dwarfs and pigmies in the royal and other households of the ancient Egyptians. Locus : Bl. 12A, ho. I, rm. 17. Level : – 20·5 ft.

No. 12 (DK 8208). Pottery ; no slip. 4·05 ins. high. Similar in all essential respects to No. 7 on the same plate. The breasts are, however, more pendant and the infant is hardly recognisable as such. This figurine like No. 7 is hollow and very roughly made. Locus : Bl. 7, ho. IX, rm. 31. Level : –13·4 ft.

No. 13 (DK 8734). Pottery, with a red slip. 2·38 ins. high. A dancing figure with short, squat legs, wearing a scarf and a fillet round the head but otherwise nude. The head-dress suggests that it is meant to represent a woman, though no breasts are indicated. Locus : Long Lane, bet. Bls. 7 and 9 (VIII). Level : –18·2 ft.

No. 14 (DK 9737). Pottery ; no slip. 1·95 ins. high. Torso of a woman clasping a baby to her breast which is hidden by a number of necklaces that are arranged in double rows—possibly to represent double strings of beads—and

have their ends brought to the front. These necklaces though apparently continued round the back of the figure are not so in reality. Roughly fashioned, especially the figure of the infant. Locus : Bl. 7, ho. I, rm. 3. Level: – 29·9 ft.

Nos. *15 and 16* (DK 8960). Pottery, coated with a red wash. 2·52 ins. high. This female figurine wears the usual panniers and fan-shaped head-dress, but surmounting all she carries a curious object not unlike a four-legged stool with the corners projecting slightly upwards. This is an entirely new form of head-gear and is of the utmost interest. Locus: Bl. 1 (Palace), court III, rm. 1, Level : – 20 ft.

No. 17 (DK 9223). Pottery, with a red slip. 4·3 ins. high. Only the torso of this figure remains with five strings of beads, all represented with pendants hanging from them. To avoid concealing the breasts beneath all this jewellery, they have, very curiously, been placed so far to either side as to rest partly on the now missing arms. The usual short skirt is indicated, supported by a girdle tied in front in a bow, as in Pl. LXXII, 6. Locus : Bl. 3, ho. I, rm. 5. Level : –16·9 ft.

No. 18 (DK 6519). Pottery, with traces of a red wash. 1·92 ins. high. This is a side view of the head and shoulders of a female figure wearing tight necklaces, apparently of double strings of beads, and very unusual ornaments on either side of the head. Locus : Long Lane, bet. Bls. 10 and 12. Level : –17·7 ft.

No. 19 (DK 8191). Pottery ; no slip. 4·4 ins. high. Hollow pottery head and shoulders of a woman with very prominent breasts. The sides of the fan-shaped head-dress are swathed with twisted and ornamented bands of material. Below two necklaces fairly close round the throat there is a long thin scarf, like that in Pl. LXXVI, 17, which seems to be fastened to a girdle by a medallion just below the breasts. Some considerable care has been exercised on this figure, though the modelling in general is rough, and an impression is conveyed of a wealthy woman who was fond of good living. Though the figure is hollow, the walls are very thick, and it is not well baked. Locus : Bl. 7, ho, IV, rm. 49. Level : –15 ft.

No. 20 (DK 5910). Pottery, with a red slip and the remains of a stucco coating around the eyes and mouth. The lower part of the body and legs are missing. A very curious, stole-like vestment is represented, the two ends of which fall down in front. The larger strips below are presumably intended to represent the arms though, it should be noted, both the ends of the stole and the arms have similar lines incised upon them. We have found nothing quite like this figure before. Locus : Bl. 1, ho. VIII, rm. 63. Level: – 15·8 ft.

Nos. 21-3 (DK 3506). Pottery, with a thick red, partially polished slip. 9·15 ins. high. This is the best preserved figure of its kind that has been found at Mohenjo-daro, and its workmanship, though somewhat rough, is decidedly spirited. The upper edge of the simple short skirt is secured by three bands that are fastened in front by a medallion-like clasp. On a double necklace there are four pendants, and one upon a longer necklace hanging between the breasts. In the large panniers which are suspended on either side of the head by a double band of material ornamented on one side with an incised rosette, there are black marks which look like soot. The cone worn on the forehead and the broken ornament above it which cannot at present be identified served to fasten the supports of the panniers, producing in all a very complicated head-dress, especially as there are also the cone-like projections in front of the ears that are already familiar on other figures of the Mother-goddess. The hand and foot that remain are merely

flattened ends. The eyes, nose and mouth are represented in the usual way. Locus : Crooked Lane, bet. Bls. 3 and 5. Level : $-13\cdot2$ ft.

Plate LXXVI.—No. 1 (DK 8290). Pottery ; no slip. 2·6 ins. high. A hollow, horned mask, made in a mould, with a hole on each side just below the ears. Locus : Bl. 9, ho. VIII, rm. 18. Level : $-13\cdot4$ ft.

No. 2 (DK 8863). Pottery ; no slip. 2·1 ins. high. A hollow mask with holes at the sides for tying it on ; very similar to others found in the lower levels, but surmounted with spiral horns, possibly those of a goat, instead of the usual bovine ones. Locus : Bl. 9, ho. VI, rm. 78. Level : $-18\cdot6$ ft.

No. 3 (DK 9208). Pottery ; no slip. 1·9 ins. high. The horns of this hollow mask curve to the front instead of upwards as is usual. The short beard represented by very shallow incised lines is unique in this type of mask. Locus : Bl. 1, ho. VII, rm. 3. Level : $-17\cdot3$ ft.

No. 4 (DK 8857). Pottery ; no slip. 1·78 ins. high. A hollow, horned mask made in a mould. The eyes have a Mongolian slant, and both the eyebrows and mouth are very strongly defined. There are the usual holes on each side of the mask for tying or sewing it on. Locus : Fore Lane, between Bls. 1 (III) and 7. Level : $-22\cdot3$ ft.

No. 5 (DK 8584). Pottery, with a red slip. 3·4 ins. high. The bust of a woman as shown by the prominent breasts. The two pairs of horns (?), of which the hinder ones are broken, may from their somewhat bird-like form have been intended to represent doves perched on the head of a female deity. A fracture at the back of the head suggests that there was once the fan-shaped erection with which we are familiar in the commoner figurines. Something is also missing from the right side of the face—possibly an earring. This figurine is very roughly made and it lacks the usual jewellery indicated by strips and pellets of clay. In their place a necklace was represented in white paint. Locus : Bl. 7, ho. IV, rm. 69. Level : $-23\cdot1$ ft.

No. 6 (DK 7396). Pottery, with a red slip. 2·3 ins. high. A small figure with a fillet round the forehead and back of the head, clasping a round, flat object to its breast with both hands. Legs outstretched and represented as bandy. Locus : Bl. 2, ho. IV, rm. 22. Level : $-17\cdot7$ ft.

No. 7 (DK 9703). Pottery, with a red slip. 1·4 ins. high. Seated figure of a woman wearing a high, tight necklace, a fillet round the forehead, and apparently long hanging earrings—unless these last are ornaments suspended from the fan-shaped head-dress. The size of the head and neck is out of all proportion to the shapeless body. The base of the figure is slightly rounded, but it stands well nevertheless and may have been used in a board-game like No. 17 in the same plate. Locus : Bl. 7, ho. I, rm. 14. Level : -30 ft.

No. 8 (DK 8773). Pottery, with traces of red applied over a thick pinkish slip. 2·92 ins. high. Two pottery faces, apparently made in the same mould, were joined together back to back to make this Janus-like head, the material squeezed up between them serving to represent a head-dress. This double head appears to have been attached to a single body, as the base of the joined necks shows a definitely single fracture. The slanting eyes seem to have been touched up with a graver. This is perhaps a representation of a double-faced deity which is new to us at Mohenjo-daro and leaves room for speculation. Locus : Bl. 7, ho. VIII, rm. 25. Level : $-22\cdot1$ ft.

No. 9 (DK 6197). Pottery, with a cream slip. 2·48 ins. high. This face was made in a mould and the head-dress added afterwards. A joint can be distinguished all round the face. The eyes are Mongolian in character, and the high cheek bones characteristic of that race are well accentuated. Whether the smile is intentional, it is difficult to say. The high head-dress suggests a woman, though the face itself is more like that of a man.[1] Locus : Bl. 4, rm. 8. Level : —20·4 ft.

No. 10 (DK 8932). Pottery; no slip. 2·6 ins. high. A roughly modelled figure, probably that of a woman, with the hair hanging down the back. This figure is unusual in that it is fixed on a pottery stand. Locus: Bl. 7, ho. V, rm. 68. Level : —21·5 ft.

No. 11 (DK 9005). Pottery, with traces of a red slip. 1·88 ins. high. Two views are shown of this figure which seems to represent a female. The curious dressing of the hair is noteworthy ; part is arranged in a bun at the back of the head and the rest hangs down. A pointed instrument was used here and there in modelling the hair. The bent arm and short, thick, bandy legs suggest a dancing attitude. Locus : Bl. 1 (IV), rm. 60. Level : —20·4 ft.

No. 12 (DK 9239). Pottery, with a red slip. 1·41 ins. high. This mask was made in a mould, and the head and hair added afterwards. It is interesting as showing an unusual arrangement of the hair, which was coiled into a thick rope and brought round from one side of the head to the other ; but how such a mass of hair was kept in this position is not at all clear. Locus: Bl. 3, ho. I, rm. 5. Level : —17·8 ft.

No. 13 (DK 8439). Pottery, with a red slip. 3·11 ins. high. Upper part of the figure of a woman holding a child to her left breast. The tall head-dress has a medallion on one side and the fracture where another has broken off on the other side. These two medallions were connected by a strip of clay. Locus : Bl. 10, ho. I, rm. 11. Level : —20·7 ft.

No. 14 (DK 9674). Pottery, with a red slip. 2·91 ins. high. A very roughly modelled, seated figure whose back suggests that it was once placed on a stool. Either a high head-dress or a cap is worn. Locus : Fore Lane, bet. Bls. 1 and 10 (I). Level : —28·4 ft.

No. 15 (DK 8917). Pottery, with traces of a red slip. 2·5 ins. high. A male figure, wearing a simple collar with pendants and a long double scarf comparable to that in No. 22 of the same plate. The hair was once represented by fine coils of twisted clay, whose impressions still remain.[2] A slight, and very indefinite projection at the back of the neck is unusual, and may be an attempt to represent the clasp of the necklace. Locus : Bl. 1 (Palace), S. E. wing (I), rm. 20. Level : —19·5 ft.

No. 16 (DK 6970). Pottery, with a red slip. 3·12 ins. high. Male (?) figure, with an unusual head-dress resembling a turban, decorated in front by a long, double band. Earrings are worn. Locus : Bl. 10A, rm. 7, Level : —17 ft.

[1] In view of the unmistakeable Mongolian features of these heads, the reader should see Col. Sewell's and Dr. Guha's report on one of the skulls found at Mohenjo-daro prior to 1927, which they describe as Mongolian. This skull was found in the upper levels, and even though it is uncertain whether it was actually contemporary, it is possible that people of Mongolian race formed part of the population of Mohenjo-daro ; *Mohenjo-daro and the Indus Civilzation*, p. 643, Pl. CLX, 5, 7.

[2] *Cf.* Pl. XCV, 22, 25, in *Mohenjo-daro and the Indus Civilization.*

No. 17 (DK 8757). Pottery; no slip. 2·3 ins. high. This is a seated female (?) figure with the feet projecting very slightly. As the base is flat and the figure quite stable, it is possible that it is a piece used in a board game. Locus: Bl. 7, ho. VIII, rm. 28. Level: —20·8 ft.

No. 18 (DK 7508). Pottery, coated with red over a cream slip. 3·8 ins. high. This figure wears a short beard slightly turned up at the end. The eyes and mouth are represented by added pellets of clay, carefully smoothed over so that they merge well with the head itself and produce an effect of the head having been moulded. A fracture at the top of the head suggests that there formerly was a head ornament or that the hair was represented. Similar breaks on either side of the head indicate that there was once a pair of horns. Locus: Fore Lane, bet. Bls. 1 (Palace), E. wing (III), and Bl. 7. Level: —19·7 ft.

No. 19 (DK 9586). Pottery, with traces of a red slip. 2·4 ins. high. This broken fragment is illustrated to show the short, belt-like skirt that was apparently decorated with bosses—in this case five, two of which are now missing. *Cf.* No. 22 in the same plate. Locus: Fore Lane, bet. Bls. 1 and 10 (I). Level: —27·6 ft.

No. 20 (DK 5606). Soft, cream-coloured paste which may once have been glazed. 1·1 ins. high. The headless, seated figure of a woman with long, pendant breasts, one of which is tucked under the right arm. A short kilt-like skirt is worn, but there are no ornaments nor clothing above the loins. The right arm is bent upwards with the elbow resting on the knee. A small shallow hole in the hand is possibly only an attempt to distinguish between fingers and thumb. For so small a figure the modelling is very good, and it may represent a goddess. Locus: Bl. 11, ho. III, rm. 25. Level: —20·2 ft.

No. 21 (DK 7250). Pottery; no slip. 5·45 ins. high. A somewhat roughly made figure wearing earrings (?) and a cone-shaped ornament on the forehead, from which hangs a coiled strip of clay that probably represents a lock of hair. No panniers are indicated, though there are cone-like projections before the ears. Locus: First St. (3). Level: —17 ft.

No. 22 (DK 6735). Pottery, with a red slip. 3·6 ins. high. The loin-cloth of this presumably female figure is studded with six large, cone-shaped ornaments which may have been made of hollow metal.[1] A choker-like necklace is also worn, and a loose, long scarf whose ends were fastened together with a medallion-like ornament, now missing. Locus: Crooked Lane, east of Bl. 1 (Palace), S. E. wing (I), rm. 22. Level: —15·3 ft.

No. 23 (DK 8921). Porous, white paste, probably once glazed. 2·58 ins. high. A nude figure of a man which seems to have been modelled by hand and not in a mould. Where the right arm should be, there is a small hole which suggests that the limbs were pegged to the body for added strength. Locus: Bl. 8, ho. II, rm. 21. Level: —14·1 ft.

No. 24 (DK 8786). Pottery, with a cream slip. 4·55 ins. high. This nude male figure wears only a scarf, the greater part of which is missing. Both arms are broken, but where the right hand should begin there is a hole pierced vertically, which was perhaps intended to hold something. Locus: First St. (5). Level: —21·7 ft.

[1] The girdle does not go round the back though the loin-cloth does.

No. 25 (DK 7701). Pottery ; no slip. 3·38 ins. long. Figure of a crawling baby, with hair not yet grown, wearing necklaces and also anklets. The genital organs show it to be a boy. Though carelessly fashioned, this does not look like the handiwork of a child, and it may be a votive figure. Locus : Bl. 1 (Palace), court I, 75. Level : −17·3 ft.

No. 26 (DK 8326). Pottery, with traces of a red slip. 4·2 ins. long. This very unusual object consists of a somewhat irregular plaque with a flat, smooth base and slightly rounded upper surface, from one end of which there projects at right angles a horned head with oval pellets to represent the eyes and a long strip of clay for the mouth. Slightly beyond this head the plaque terminates in the head of a bull-like animal, whose horns have unfortunately been broken off. These two heads face in opposite directions. The base of the plaque is smooth, but it seems never to have been coloured red, and it may have been affixed to a clay body to represent the multi-headed animals that are sometimes, though rarely, depicted on the seals ; or it may have served to ornament a jar, though we have not as yet found a jar so decorated.[1] Locus : Bl. 9, ho. VIII, rm. 18. Level : −16·6 ft.

MODEL ANIMALS.

Clay.

The clay used in the manufacture of the model animals is the same colour and quality as was used for the human figurines and for pottery. On the whole the model animals do not seem to have been as well baked as the figurines, but as many are obviously toys[2] and were possibly made at home this was to be expected. With the possible exception of No. 4 in Pl. LXXVII, all of them are solid.

Like the human figurines, the animal figures were frequently coated with a red wash or slip, varying from a light to a dark red. Even some that are obviously toys (*e.g.*, Nos. 8 and 9 in Pl. LXXVIII ; Nos. 8 and 19 in Pl. LXXXI) are thus coated. The model animals found in the lower levels are more often covered with a cream-coloured slip than with red ; and cream slips are also common in the upper levels.

It is certain that many of the pottery figures were more gaily coloured, as for instance, those in Pls. LXXVII, 10, 12 ; LXXIV, 5 ; LXXX, 27, than with the usual red or cream slip. Indeed, it is conceivable that many more were painted in polychrome than we are at present aware of ; it has already been pointed out how friable were the colours on the polychrome ware of Mohenjo-daro, and the same paints, or even more fugitive ones, may have been used for the model animals also.

Copper and Bronze (*Pls. LXXI, 23 ; LXXIV, 18 ; LXXVII, 1, 15, 16 ; LXXIX, 5, 6, 18–21 ; LXXX, 5*).

Animal figurines of copper or bronze are not often found, and we are fortunate in being able to illustrate eleven, all of which are probably cast bronze. Despite the advanced state of corrosion of some of them, it is evident that they were

[1] This strange object is in a way comparable with one found by Dr. Frankfort at Tell Asmar and considered by him to be perhaps of astrological significance. Both appear to date from the same period ; *Tell Asmar and Khafaje* : Oriental Institute, Chicago, p. 23, fig. 18.

[2] Some of these models may, however, have been made for votive purposes.

carefully modelled, sometimes with a great deal of realism ; Nos. 19 and 21 in Pl. LXXIX are exceptions. Some are very small, *e.g.*, Nos. 15 and 16 in Pl. LXXVII and Nos. 5 and 6 in Pl. LXXIX, though they appear not to have been intended for use as amulets ; only No. 19 in Pl. LXXIX has a hole for suspension, unless the shallow pitting in the shoulders of No. 15, Pl. LXXVII, is an unfinished hole.

The method employed in casting most of these animal figures was probably the *cire perdue* process, though No. 19 in Pl. LXXIX, at all events, was cast direct in a mould. It is, moreover, exactly like an animal figurine found prior to 1927 and seems to have been made by the same man.[1] This peculiar figure was apparently cast for some special purpose, as the ring beneath the bar upon which the bull is standing would be quite useless for suspending it.

The finest model animal that we have found in the DK Area is seen in Nos. 18 and 20 in Pl. LXXIX. This figure of a short-horned bull stands 1·5 ins. high. Unfortunately, a certain roughness of workmanship has been accentuated by corrosion. But this little model may never have been finished ; it was possibly intended to remove the irregularities with a graver.

Perhaps the best bronze figure of an animal that we have unearthed at Mohenjo-daro is the buffalo, 2·85 ins. long, found in the SD Area and illustrated in Pl. LXXI, 23. This also has suffered badly from corrosion and its surface is very pitted. With the other model animals it is fully described further on in this chapter.

Stone (*Pls. LXXI, 25 ; LXXVII, 8 ; LXXIX, 24*).

Model animals of stone are much rarer even than those of bronze or copper. Only three examples have been found since 1927 ; one from a later stratum, a bull, roughly carved in cherty limestone (Pl. LXXI, 25) ; another, a ram, cut in light yellow steatite (Pl. LXXVII, 8), also from an upper level ; and the third a bull, roughly carved in white steatite, from a very low level (Pl. LXXIX, 24).

Faience or Vitreous Paste (*Pls. LXXIV, 6, 9, 20 ; LXXVII, 9, 13, 19, 20 ; LXXVIII, 2, 4 ; LXXX, 1, 3, 13, 24*).

Model animals in faience or the stronger vitreous paste are not uncommon, but those of faience have lost most of, or all their glaze, and are consequently, in a rather poor state of preservation. It is doubtful, indeed, whether Nos. 1 and 3 in Pl. LXXX were ever glazed at all ; possibly they were never finished. The faience figures are made of a porous, white or cream-coloured paste resembling powdered steatite ; indeed, the analysis of samples taken in the past from similar figures proved that steatite was sometimes actually used for this purpose. Those of vitreous paste, *e.g.*, Nos. 6, 9, 20 in Pl. LXXIV and No. 20 in Pl. LXXVII, are in much better condition. No. 13 in Pl. LXXVII, in particular, still has in parts a hard and glossy surface. No animals modelled in vitreous paste have as yet been found in the lower levels, though beads and other objects of this material are relatively common in those levels. The lack of paste animals in the earlier occupations must then be due to chance.

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXLIV, 2.

Shell (*Pls. LXXI, 29 ; LXXIV, 11, 12 ; LXXIX, 28*).

Model animals were very rarely made of shell and we have only come upon four examples since 1927. Three of these are bull's heads (Pls. LXXIV, 1, 12; LXXIX, 28), the first two from the upper levels and the third from 17·1 ft. below datum. The last differs somewhat from the other two, in that it is so considerably larger that a single piece of shell could not be procured of sufficiently large dimensions from which to cut the whole head. The curious animal seen in Pl. LXXI, 29, cannot at present be identified.

Stands.

Most of the model animals stand quite well on their four legs, but the difficulty with the birds was met in several cases by providing them with stands as perches (Pls. LXXVII, 5, 6 ; LXXX, 21, 25). Many of the model birds had sticks for legs, and these may have been inserted in a wooden support which has long since perished. It is very rare, indeed, to find a bird with its legs modelled in clay ; in a notable example (Pl. LXXX, 22) the pottery legs are of sufficient girth to enable the bird, a peacock, to stand firmly without assistance. In a few cases, a model animal had a broad, flat, pottery stand (Pls. LXXVIII, 7 ; LXXIX, 31 ; LXXX, 9, 20). The long tang below the bronze goat (Pl. LXXIV, 18) was clearly intended to fix it on some kind of support.

Moulds.

It is strange that moulds were not more often used in making models of animals, seeing that they were used for making masks of the human face (Pl. LXXVI, 1–4). No. 32 in Pl. LXXIX, which was certainly made in a mould, is the mask only of an animal. As yet not a single actual mould has been found at Mohenjo-daro, for the making of figurines or any other objects.

Animals as Amulets.

Nos. 6, 9, 20 in Pl. LXXIV and Nos. 9, 13, 20 in Pl. LXXVII were evidently amulets, and possibly No. 8 also in the latter plate. The first two are pierced for threading on a necklace, and it would have been possible to use No. 20 in Pl. LXXVII in the same way by passing the cord through the aperture between the fore-paws and the head of this little model of a squirrel. No. 8 in Pl. LXXVII is possibly unfinished, though the deep groove may have served the two purposes of denoting the neck and also taking a wire or cord for suspension. It also seems certain that Nos. 5 and 6 in Pl. LXXIX, both from the lower levels, and the bronze figure of an ibex illustrated in Pl. LXXX, 5, were worn as amulets. No. 5 in Pl. LXXIX, a bronze figure of a ram, is pierced longitudinally, but no holes are now to be seen in the other two ; it is possible that the corrosion of the metal has filled them up. No. 10 in Pl. CXI is a couchant ram which has a minute hole passing longitudinally through it.

Antelope.

Model antelopes in clay or any other plastic material are rarely found. Nos. 1 and 2 in Pl. LXXVII probably represent the Indian gazelle, No. 1 in bronze and No. 2 in pottery. What appears to be a representation of a black buck (Pl. LXXX, 4)

is the only example from the lower levels. Though it is roughly made, some endeavour seems to have been made to portray the long, spiral horns (parts of which are now missing) of this species of antelope.

Dog.

That the dog was domesticated at Mohenjo-daro is evident from Nos. 16 and 17 in Pl. LXXVII, of which the former is bronze or copper, and the latter roughly modelled in pottery. Both these dogs have a tightly twisted tail, lop ears, and a short powerful muzzle, and one has a stout collar round its neck. A dog with a curly tail is also seen on a piece of shell inlay from Kish, though unfortunately its head is missing;[1] its general build is that of a mastiff, to which breed the two examples from Mohenjo-daro seem to belong. What appears to be the same species of dog, wearing a collar and in charge of an attendant, is also seen in relief on a pottery plaque from Mesopotamia in the British Museum.[2]

Models of dogs of another type found in the lower levels (Pl. LXXIX, 4, 6, 11, 12, 15) have longer faces, upright tails and prick ears; and these closely resemble certain ancient Egyptian representations of dogs, including those depicted on the knife-handle of Gebel-el-Arak. Similar dogs are seen on archaic Elamite sealings,[3] also with long faces and prick ears, and tails well set up but not curled. All these dogs closely resemble the pariah dog of the present day.

It is possible, therefore, that the two model dogs seen in Pl. LXXVII, 16, 17, were accurate representations of a breed of dog that perhaps still exists in Sindh—a dog characterised by a compact body, definitely curled tail, short legs, large hanging ears and a short head, a type quite unlike the pariah dog or those used in hunting in Sindh at the present day. A model of a third species of dog, which closely approaches the bull-dog in type, has already been illustrated and described in the first book on Mohenjo-daro.[4]

In all probability these mastiff-like dogs were kept as pets, and in some cases for hunting. Many of the models (Pls. LXXVII, 16; LXXIX, 11, 12, 15) show them to be wearing substantial collars;[5] and that some, at least, were watch-dogs is suggested by a broken pottery model of a dog tied to a post.[6] We have no evidence that the dog was sacred, as it is in some parts of India at the present day,[7] but that proof of this may eventually be found is quite possible.

[1] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, pl. XXXVI, fig. 6.

[2] *Guide to British Museum* (Babylonian and Assyrian Antiquities), 1922, p. 191. It may perhaps be dated to c. 2,000 B. C.

[3] *Mém. Dél. en Perse.* t. 16, pl. XVI, fig. 245.

[4] *Mohenjo-daro and the Indus Civilization*, pl. XCVI, 17. See also Col. Sewell's report on the dog's bones from Mohenjo-daro, vol. II, pp. 650-2.

[5] Perhaps to protect them against panthers, as is done at the present day in India.

[6] *Mohenjo-daro and the Indus Civilization*, pl. XCVI, 18.

[7] Crooke, *Religion and Folklore of Northern India*, II, pp. 218-9.

Turtle.

The well-made model of a turtle illustrated in Pl. LXXVII, 21, is of especial interest because only three have been found as yet ; one cut in shell was illustrated in the previous book.[1] Several bones and plastrons of the river turtle found at Mohenjo-daro have been described by Col. Sewell.[2] The example from the later levels (Pl. LXXVII, 21) is exceptionally well-made, an earlier one (Pl. LXXX, 6) being of very inferior workmanship. The turtle may have been eaten, but perhaps not generally so, as few remains have been found. It is only used as an article of food by very low caste people in Sindh at the present day. Models of very early date of the Nile turtle have been found in Eygpt, and the animal also appears about the same date on the white-lined ware of that country.[3] It is fairly often represented on the pottery from Susa ; a specially notable example shows it in relief on the rim of a pottery jar holding two snakes by the neck with its front flippers.[4] Its very prominent position on this jar suggests that it was a sacred or quasi-sacred animal ; in Sumer the turtle sometimes represented the water-god Ea or Enki. Whether any sanctity attached to this creature in early Sindh, it is as yet impossible to say ; but the fact remains that the first found model of a turtle was unearthed in the building beneath the Stūpa, which there is good reason to suppose was sacred. The turtle appears in association with a gharial on two amulets (Pl. CI, 2, 3), its only occurrence on either a seal or sealing.

Humped Oxen.

Not nearly so many models of humped oxen have been found in the upper levels of the DK Area as elsewhere in the site. Whether this is accidental or not, it is impossible to say ; but in the earlier strata and especially nearly down to the water-level in the soil we have found quite a number of examples, mostly of the type No. 26 in Pl. LXXIX. Models of the ordinary bull (Pls. LXXVIII, 5 ; LXXXIX, 24, 27, 29, 30 ; CXII, 10) are comparatively common, but, unfortunately, they are nearly always too badly damaged to be photographed.

In the earlier work upon the site, I have already referred to early representations of the humped bull in other countries. I would here like to add the two humped oxen that are carved on a wall of the Temple of Ramesses II at Abydos harnessed to a Hittite wagon.[5] This carries back the already known occurrence of this animal in Syria to well before 1,000 B. C. In Egypt, the humped bull appears earlier still, namely, about the time of the Eighteenth Dynasty ; and it is possible that like the horse it was introduced into that country from Syria. Humped oxen have an advantage over the humpless kind, as Mr. Hornblower has already pointed out,[6] in that they take the yoke better. But it also appears that these animals are practically immune from tick-fever, and for this reason they have actually been introduced into some parts of America to cross with native cattle. It may even be that the advantages of the humped bull in this respect were also appreciated anciently. The evidence at present available suggests that humped

[1] *Mohenjo-daro and the Indus Civilization*, pl. XCVI, 15.

[2] *Op. cit.*, p. 662.

[3] Petrie, *Prehistoric Egypt*, p. 13.

[4] Contenau, *Manuel d'Archéologie Orientale*, p. 349, fig. 258.

[5] Clarke and Engelbach, *Ancient Egyptian Masonry*, p. 87, fig. 82. The horns of these animals, however, are curiously small and unformed.

[6] *Journ. Eg. Arch.*, vol. XIII, p. 225.

cattle gradually made their way from Elam to Egypt, *via* Anatolia and Syria, and it is quite possible that their original habitat was India, from which country they were introduced into Elam at a very early date.[1]

Some of the models of this species of ox found at very early levels, *e.g.*, Nos. 16, 17, 26 in Pl. LXXIX, have the fore-legs and the hind-legs respectively joined together. But in all the models from the upper levels, the legs are free.

Ordinary Oxen.

Models of ordinary, humpless oxen are as numerous in the lower as in the upper levels, and it is difficult to distinguish between those of earlier and of later date. Some are exceedingly roughly made, *e.g.*, No. 5 in Pl. LXXVIII and No. 29 in Pl. LXXIX, whereas others, which happen to be mostly from the earlier levels, are so carefully modelled that they may well be cult objects (Pls. LXXI, 25 ; LXXIX, 24, 30, 33).

No. 30 in Pl. LXXIX is the finest pottery model of a bull that has been found at Mohenjo-daro, though one found previous to 1927 is a close second.[2] It is made entirely by hand, not in a mould, and the knife was freely used both to pare the body and to put in details. The head of No. 33 in the same plate is very similar, but not so carefully worked ; and yet one feels that a little more finish would have detracted from the extraordinary sense of vigour and power conveyed by this head. No. 30 comes from the level 24·1 ft. below datum, and No. 33 from a stratum about 5 ft. higher.

In striking contrast to the above two bulls is No. 31 in the same plate, also from a low level. Quite a number of these roughly modelled bulls were found close above water-level during the season 1930-31, all very much damaged as if they had been thrown out from somewhere, and in a poor state of preservation. It would perhaps be safer not to regard all these roughly modelled figures as toys ; they may have been votive offerings, of which large accumulations were from time to time thrown away to make room for more, and only in their latter end did they become children's playthings.

I have already noted that models of bulls were made in other substances than pottery, and in Pl. LXXIX are seen examples that were made in such diverse materials as steatite (No. 24); shell (No. 28), and copper and bronze (Nos. 18-21). A stone bull is illustrated in Pl. LXXI, 25. No. 24 in Pl. LXXIX is a remarkable object, whose horns and ears were probably inset with some other material,[3] which links it with the composite models of bulls found in Egypt and Crete.

The pottery head, No. 32 in Pl. LXXIX, comes from as much as 28 ft. below datum ; and it is the first of its kind that we have found, though human heads with horns are well known to us. This hollow mask has a hole on each side for fastening it to something, and like the human masks it was made in a mould. Unfortunately, the horns are missing.

The carefully modelled pottery head of a bull in Pl. LXXVIII, 6, and the hollow one of coarser make in Pl. LXXIV, 8, the latter of which resembles two found at lower levels (Pl. LXXIX, 22, 23), evidently had some use in ritual. A

[1] For an early example of a humped bull from Sumer, see Frankfort, " The Indus Civilization and the Near East," *Ann. Bibl. Ind. Arch.*, pl. I., g. Col. Sewell suggests, however, that these cattle were introduced into India from the west, by some immigrating offshoot of the Mediterranean race ; *Mohenjo-daro and the Indus Civilization*, vol. III. p. 658. Friederichs is also of the opinion that India is not the original home of the zebu : *Der Alte Orient*, band 32, heft 3/4, p. 12.

[2] *Op. cit.*, pl. XCVII, 23.

[3] The stone horn in Pl. CVIII, 35, was probably from a very large figure of a bull.

deep, slightly conical hole in the lower part of the back of No. 6 shows that it was intended to fix it on a round rod, like the ram's head found on the floor of a small sanctuary of the Larsa Period at Ur and thought to be one of the heads mounted on staffs on either side of a cult-figure.[1] The modelling of No. 6 is very powerful though more decorative than life-like. Despite this, however, a certain amount of attention had been paid to minor details such as representing the hair over the forehead and muzzle by shallow incised lines. There are also sockets, now badly mutilated, for inset ears and horns which were probably made of some other material. No. 8 in Pl. LXXIV and Nos. 22 and 23 in Pl. LXXIX are all hollow and also have holes to set them on staves.

The bulls' heads cut in shell, which are seen in Pl. LXXIV, 11, 12, show the high order to which the carving of animals had been carried at Mohenjo-daro. At the back of each, a flat plane obviously fitted on to a body of some other material, which, unfortunately, has not been found and may possibly have been cut up for some other purpose. The sockets for the insertion of horns, eyes and ears recall the Minoan figures of bulls, in which these features were made separately, whether in gold, paste, crystal or other material, and were subsequently fitted in. It would be interesting to know whether the eyes in these two heads were of blue paste or lapis-lazuli, as was usually the case both in the early Sumerian shell figures and the faience and other figures of Minoan work; though blue is not the colour of the eyes of a bull, they were often so represented both in Sumer and Crete.

Horse.

Perhaps the most interesting of the model animals is one that I personally take to represent a horse (Pl. LXXVIII, 11). Unfortunately, both the tail and ears are missing, so that the identification of this model as representing a horse is purely tentative. In all the pottery models of animals that we have found as yet, the tail invariably lies close against the hind-quarters, but here the stump of the tail is detached and as arched as that of an Arab pony. I am also convinced that the two small fractures at the top of the head are those where ears once were, not horns, chiefly because the horns of the model animals are always very prominent (Pl. LXXVIII, 5). The arched and comparatively thin neck of this model is also much more like that of a horse than of any other creature.[2] I do not think that we need be particularly surprised if it should be proved that the horse existed thus early at Mohenjo-daro. The undoubted skeletal remains of the animal that have been found in Southern Palestine by Sir Flinders Petrie are dated by him to the Middle Bronze Age (C. 2,000 B. C.).[3] Professor Langdon, moreover, claims that the ideogram for horse on one of the tablets from Jemdet Nasr establishes the existence of the animal in the Middle East long before 3,000 B. C.[4] Additional evidence of its domestication is afforded by representations of it incised on two bone objects recently found at Susa and dated to the Awan Dynasty (3,000 B. C.).[5]

[1] Woolley, *Antiquaries Journal*, vol. XI, p. 371, pl. LII, fig. 1.

[2] I have shown this figure to several experts on the horse and with one exception they are agreed that it can represent no other animal.

[3] At *Tell-el-Ajul*. This is said by Petrie to be the earliest example of the domesticated horse to be found in the Near East; *Illust. Lon. News*, May 2nd, 1931, p. 739.

[4] Tablet 129; *Oxford Editions of Cuneiform Texts*, VII, preface.

[5] R. de Mecquenem, *Antiquity*, Sept., 1931, p. 331, figs. 1, 3. 4. That it was certainly known in Sumer about 3,000 B. C. is proved by Frankfort and Preusser; *Illust. Lon. News*, Oct. 8th, 1932, p. 529, fig. 14. In "The Evolution of the Domestic Horse", *Antiquity*, vol. IX, No. 34, pp. 133-9, Max Hilzheimer states that bones from Tell Asmar that were thought to be those of the horse have been identified as the onager of hither Asia.

This last piece of evidence is especially important since the philological evidence alone might be open to criticism. If, therefore, as appears certain, the horse was known in Elam as early 3,000 B. C., the probability is that it was also known to, if not used by, the Indus valley people at the somewhat later date, 2,500 B. C., to which we now ascribe the uppermost levels of Mohenjo-daro.[1]

Elephant.

The elephant in Pl. LXXIX, 13, is the best preserved, baked clay model of that animal that we have found. Though the elephant is fairly commonly represented on seals and amulets, it seems rarely to have been modelled.

Pig.

Models of swine are also rare, but an undoubted pig is seen in Pl. LXXIX, 1. This figure was badly broken, and a somewhat better preserved example is seen in the first book on Mohenjo-daro.[2] As this animal is not often represented in the art of the ancient Indus valley, it is reasonable to suppose that the wild pig is represented in these two models. As Col. Sewell has pointed out, all the skeletal remains of the pig that have been found at Mohenjo-daro—and they are many —are of the Indian boar (*Sus Cristatus*).[3] The boar may have been used as an article of food or hunted for its tushes. It is significant that it is only the jaws and teeth of the animal that are found, which suggests that the latter were especially valued ; yet the teeth of the boar were never used for making anything. It may be, then, that the animal was hunted by dogs, as it still is, in Balūchistān ; that this sport was also practised in early Elam is proved by an archaic seal from Susa.[4] Possibly, the head alone was brought home as a trophy of the hunt ; if the flesh had been eaten, we should have expected to find the other bones.[5]

Rhinoceros.

This animal is frequently depicted on the seals and amulets, and was also very commonly modelled in clay, especially during the later occupations. A very good model (Pl. LXXVII, 22) has the folds of the skin represented by strips of clay pitted all over to simulate the great horny bosses, some of which on the actual animal are as much as an inch in diameter. Two examples from the lower levels (Pl. LXXIX, 2, 3) are nothing like so realistically modelled, but we have not yet found a sufficient number in the lower strata to say whether or not they were in general as elaborately modelled as those from the upper levels. In No. 2, Pl. LXXIX, the armour-plated hide of this animal is not indicated, emphasis being placed on the tubercles alone, which are incorrectly represented as covering the whole of the body. The model, No. 3 in the same plate was made with almost complete disregard of the animal's bodily characteristics. On the seals, however, this animal is delineated with remarkable fidelity as will be seen in Pls. LXXXV, 131; LXXXVIII, 309; XCIX, 651.

The animal represented is *Rhinoceros unicornis* which stands 6 ft. 6 ins. at the shoulder and is plentiful in Nepal and also along the foot of the Himalayas to Assam[6]. That it was sometimes kept in captivity seems to be indicated by the presence of a food-trough beneath its head on the seals. It may also have

[1] The jaw of a horse, *Equus caballus* is recorded by Col. Sewell from Mohenjo-daro ; *Mohenjo-daro and the Indus Civilization*, pp. 653-4.

[2] *Mohenjo-daro and the Indus Civilization*, pl. XCVII, 15.

[3] *Op. cit.*, vol. II, pp. 660-1.

[4] *Mém. Dél. en Perse*, t. 16, pl. XVI.

[5] In Indian mythology the boar is sacred to *Vishnu*. It may be, of course, that it was a sacred animal in India in pre-Aryan times.

[6] Stockley, *Big Game Shooting in the Indian Empire*, pp. 100, 101.

been regarded as either sacred in itself or the emblem of the deity. The horns of the rhinoceros are greatly esteemed in Eastern Asia at the present day for their medicinal qualities and it may well be that they were valued for the same reason at Mohenjo-daro.[1] As a rule, unless attacked, the animal is regarded as peaceful, but it can ably defend itself with the sharply pointed tusks of its lower jaw. The only representation of this animal that I have been able to find in early art outside India is a beast on a fragment of a Predynastic vase in buff limestone, which Sir Flinders Petrie identifies, I think correctly, as a rhinoceros.[2]

Hare.

Though this little animal is frequently seen on the copper tablets, it was not until the season 1930-31 that a second model of it was found,[3] made of faience (Pl. LXXIV, 20). The long ears and tucked up, long hind legs show this model to be undoubtedly a hare. Certain roughly made clay figures (Pl. LXXIX, 7–10, 14) all have large long ears set close against the body, but it is difficult to identify them satisfactorily and it is with a certain amount of diffidence that I suggest that they also were intended to represent hares. That they are not elephants is clear from the fact that they have no trunk. If these five models were made by children, as judging from their workmanship seems likely, their uncouth appearance would be explained. Nothing quite like them has as yet been unearthed in the upper levels, save an animal figure in the previous excavations.[4] The hare is represented practically nowhere else in ancient art than on Syro-Hittite seals of all periods.

Sheep.

It is seldom that we find the sheep modelled in clay, and even then it is sometimes difficult to distinguish it from the goat. The clay models figured (Pl. LXXX, 8, 12) come from a very low level, and the second is especially interesting in that an attempt was made to show its heavy fleece by means of curved lines. In faience and vitreous paste, however, models of sheep are fairly numerous both in the upper and lower levels. As a rule, the faience models are small and they are sometimes perforated to be worn as amulets (Pls. LXXVII, 8, 9, 13, 14 ; LXXX, 13).

The steatite model of a ram couchant (Pl. LXXVII, 8) has quite a Sumerian look about it, though there is no sufficient reason to believe that it is not an Indus valley product. Its unfinished appearance is paralleled in many of the archaic Sumerian figures of the ram and other animals. This is the only stone model of a ram that has been found, though faience models are quite common.

That the sheep was domesticated in the ancient Indus valley seems probable. Few skeletal remains, however, have been found and these are all teeth.[5] The close proximity of Mohenjo-daro to the Khīthar range in Balūchistān makes it probable that the oorial (*Ovis vignei*) was hunted, as it is still, in that country. The ram certainly appears to have been sacred, for not only has it been found carved in stone, but it also enters into the making of a composite animal with a ram's head bearing an elephant's trunk.[6]

[1] Cups made from the horn of the rhinoceros are supposed to reveal the presence of poison.

[2] *Prehistoric Egypt*, pl. XXXVI, 62, p. 12.

[3] The first was found in the VS Area : *Mohenjo-daro and the Indus Civilization*, vol. I, p. 221.

[4] *Mohenjo-daro and the Indus Civilization*, pl. XCVI, 9.

[5] *Op. cit.*, vol. II, p. 659.

[6] *Op. cit.*, pl. C, 9.

Goat.

The bronze goat (Pl. LXXIV, 18, 19) from one of the upper levels is an exceptionally fine piece of work, only eclipsed by a buffalo found in another part of the site, but, unfortunately, not so well preserved. This model goat was found in a copper vase together with some smaller jars and other objects beneath the mud-floor of an unimportant house ; and it appears from the care that was evidently taken of it to have been especially valued by its owner. It is a very worthy addition to the comparatively few real objects of art that have been found at Mohenjo-daro.

No. 11 in Pl. LXXX which is modelled in clay may also represent a goat ; though the horns are missing, the prominent beard is characteristic. The curious treatment of the eye and the mouth suggests that it was possibly intended to represent a human-headed, animal figure, a goat-man. If so, it would be comparable with the human-headed goat on the important seal in Pl. XCIX, A.

More probably than not, the goat was domesticated by the Indus valley people, though no bones of this animal have been found. The lack of bones might, however, be attributed to the salty nature of the soil rather than to the absence of the animal.

It will be noticed that both the goats represented by the bronze model in Pl. LXXIV, 18, 19, and on the seal in Pl. XCIX, A, have horizontal spiral horns. This same variety of goat is pictured on an early limestone plaque from Nippur,[1] and in Egypt it seems to have replaced the ram of Mendes,[2] with its straight horizontal horns, but at what date is not certain. In many ancient cults the goat is associated with a deity,[3] and there is reason to think that it was regarded as sacred at Mohenjo-daro ; in fact, its being sometimes represented with a human head makes this certain. In India at the present day, it is usually black goats that are selected for sacrifice, and the animal's curious habit of shivering on occasion is regarded by some as caused by some indwelling spirit.[4]

Kid.

The carefully made little model seen in Pl. LXXX, 14, seems to represent a kid, and that these little animals were sometimes kept as pets is suggested by the collar round the neck.

Buffalo.

Clay models of buffaloes are rare, and there are none in faience and only one in bronze (Pl. LXXI, 23). Nor is this animal often represented on the seals. The pottery model (Pl. LXXX, 7) comes from a low stratum, and though roughly made it shows the animal in typical attitude with its head up, snuffling the wind. Possibly this model represents a domesticated buffalo ; on the seals the animal is always represented in a truculent attitude (Pls. LXXXVII, 257 ; LXXXVIII, 279, 332 ; XCV, 445 ; XCVI, 510). Bones as well as the teeth of *Bos bubalis* have been found in the mounds of Mohenjo-daro, and according to Col. Sewell,

[1] Contenau, *Manuel d'Archéologie Orientale*, p. 441, fig. 338.

[2] *Ancient Egypt*, 1923, p. 50, No. 1.

[3] Osiris, Dionysus, Cretan Zeus, etc.

[4] Crooke, *Religion and Folklore of Northern India*, II, p. 224.

they do not differ appreciably from those of the modern beast.[1] The buffalo is frequently represented on Sumerian seals, but not on those, as far as I can gather, of archaic date. Langdon states that the animal is mentioned on some of the Jemdet Nasr tablets.[2] It was probably domesticated in Sumer in very early times as it is a most useful animal in every way. Owing probably to the bad reputation of the wild species, it is regarded in India as the vehicle of Yama, the God of Death, and pious Hindus will not use it for ploughing or carting, though the present-day Muhammedan employs it freely for either purpose.[3] The buffalo is also sacrificed to the goddess Durga.[4] That the beast was regarded as sacred by the people of the Indus Valley civilization is suggested by its appearance on the seals, though perhaps more probably on account of its being feared than for any beneficial attributes associated with it.

Monkey.

Models of monkeys are quite numerous chiefly in faience or vitreous paste and seldom in pottery. But few examples have been found in the upper levels, more probably from accident than because they were rare in the later occupations. The little head in Pl. LXXVIII, 2, and the nearly complete figure, No. 4 in the same plate, are both made of a white paste which has lost its glaze ; and two others of the same material, the first from a very low level, are seen in Pl. LXXX, 1, 3. There is very little difference between these models either in technique or style. No. 2 in Pl. LXXX is exceptionally well made in pottery, the pouting lips and general air of alarm so characteristic of this animal being well portrayed ; its modeller was an artist of no mean ability. Nor was the maker of the paste figure, No. 1, which though unfinished held great promise. Pl. LXXI, 27, also shows a monkey modelled in clay. No bones of monkeys have as yet been found at Mohenjo-daro and we are, therefore, uncertain of the species that these models represent ; it would seem to be the common brown monkey that is so plentiful in the plains and foot hills of India (*Macacus rhesus*).[5]

The monkey may have been regarded as sacred in ancient times as now, though according to Crooke the worship of this animal does not come down from the earliest Hindu faith.[6] Monkey worship according to the same authority is more popular in the United Provinces than in the Punjab, and the animal is especially venerated in the South of India. That it was probably kept as a pet at Mohenjo-daro we can reasonably infer from the fact that some of the models of the animal are evidently toys (Pls. LXXVIII, 8, 9 ; LXXX, 2 ; LXXXI, 18, 19). Hall states that " ape statuettes in Babylonia may mean an Indian as much as an Egyptian connection ".[7] With this, I agree, except that for " ape " one should substitute " monkey ". The close resemblance of the model monkeys of Sumer and Elam to those found in the ancient Indus valley is remarkable ;

[1] *Mohenjo-daro and the Indus Civilization*, vol. II, p. 659.

[2] *Oxford Editions of Cuneiform Texts*, VII.

[3] Crooke, *Religion and Folklore of Northern India*, I, p. 169.

[4] After the goat, this animal is preferred for sacrificial purposes, perhaps on account of its colour.

[5] In some parts of India the bones of the monkey are regarded as unlucky, and are supposed to pollute the ground.

[6] Crooke, *Religion and Folklore of Northern India*, I, p. 85. It is, however, held by others that the cult is very old.

[7] *Antiquity*, June, 1930, p. 249.

in all these three countries they are represented as seated with a hand on each knee. I have never seen a monkey assume this particular position, though it is possible that the ape does so. The model monkeys in stone found at Susa date from the Second Period[1] and the one from Ur forms the gold head of a pin.[2] Those found at Babylon,[3] of much later date, and the ancient Egyptian figures of apes are also modelled in the same conventional attitude. It is possible, however, that the dog-headed baboon adopts this posture. These seated monkeys are clearly distinguished from the little figures of seated children, Nos. 14 and 16 in Pl. LXXIV, by always having their hands on the knees, whereas the hands clasp the knees in the child models.

In India, the monkey-godling Hanumān is noted for his skill in magic, grammar and the art of healing,[4] and it is worthy of note that some of the same attributes were ascribed to the god Thoth in Egypt who is commonly represented in the form of an ape.[5]

Animals of Uncertain Species.

The very roughly modelled figure, Pl. LXXX, 9, is difficult to identify. It may represent a dog, but both the fore- and hind-legs are joined together, and the model was once fixed on a stand.

Not at all uncommon in both the upper and the lower levels is a queer beast with a large mouth and a beard (Pls. LXXVIII, 7; LXXX, 10; LXXXI, 1, 1a). The creature in Pl. LXXXI differs from the other two, however, in certain particulars. The attitude of No. 7 in Pl. LXXVIII and the obvious bone beneath its front paws suggest that this is a cat or a dog. More careful attention was paid to detail in the modelling of the animal in Pl. LXXXI, 1, but it leaves us still uncertain as to its species. The vertical strokes below the gash for the mouth may possibly be intended to represent teeth; that they are not the beard is indicated by the very definite beard beneath. No. 2 in the same plate apparently represents the same creature. At first this little model was taken to be the head of a demon, but the way the eyes are treated certainly shows it to be an animal head. Like No. 1, it has very prominent teeth and a short beard below. One might with some diffidence identify it with the tiger, of which we have yet to find a model in clay or other plastic material; but, if so, it is a travesty of that animal as compared with the very careful delineation of it on the seals.

The five curious figures in Pls. LXXIV, 13; LXXVIII, 3, 12; LXXXI, 8, 14, were probably toys, for four of them originally had moveable arms and they were evidently made to be set upright on sticks. They were obviously intended to represent human forms with animal heads, since the possibility of their representing monkeys is precluded by the large and prominent ears set on the top of the head. Four of them, and perhaps also the fifth, have an abnormally swollen abdomen which suggests pregnancy. Great prominence is also given to the buttocks in three of these figures; and though these are now

[1] *Mém. Dél. en Perse*, t. XIII, pl. XXXIX, figs. 5, 7.

[2] *Antiquaries Journal*, vol. VIII, pl. LVI, fig. 2. *Cf.* the little lapis-lazuli and silver monkeys lately found at Khafaje; Frankfort, *Iraq Excavations of the Oriental Institute*, Chicago, 1932-3, p. 71, fig. 61.

[3] Koldewey, *Excavations at Babylon*, p. 234.

[4] Crooke, *Religion and Folklore of Northern India*, I, pp. 85-6.

[5] God of letters, invention and wisdom.

missing in No. 12 in Pl. LXXVIII, that they once existed is evident from the large fracture at the back of this figure. The large upright ears and long muzzle suggest the jackal. These curious creatures are not unlike the figure dancing before the unicorn on seal 316 in Pl. LXXXVIII, though this figure has a long tail, whereas that of No. 8, Pl. LXXXI, is short and not unlike that of a bird; the other better preserved figures are tail-less, but it is significant that there is a hole in No. 1, Pl. LXXIV, and in No. 3, Pl. LXXVIII, in which a tail may have been fixed.

The figure of an animal climbing a tree or post (Pls. LXXVIII, 8, 9; LXXXI, 19) is quite common at Mohenjo-daro, though only in the upper levels; none have been found below the level −15 ft. But it is invariably broken. It is possible that the post or tree was fixed to a stand, for even the flared base of No. 9 in Pl. LXXVIII is not sufficiently large to allow of its standing up-right without further support. Owing to the crudeness of the modelling, it is difficult to identify the animal represented with certainty. I am inclined to think that these figures represent monkeys; but some of them have either no tail or a very immature one. That they are not palm-rats is proved by the thin unplumed tail of No. 9 in Pl. LXXVIII.

No. 18 in Pl. LXXXI apparently shows the same creature on a stand which a round fracture below suggests was once supported on a pottery rod. If this were so, it may be that these animals were kept on a board set on a post and that sufficient rope was given them to permit of their leaving it when they liked.

No. 19 in Pl. LXXX has not yet been identified. It has a very rounded body and evidently once had four legs. It might possibly represent a tortoise.

The little figure of a crawling child in Pl. LXXVIII, 10, has been accidentally included amongst the model animals. More careful examination makes it quite certain that this is the figure of an infant, for the face is obviously human and there were once ornaments round the neck which have all scaled off, with the exception of one medallion or bead. The little pellets of clay which originally covered the whole of the head were obviously intended to represent tight curls, but whether the child was intended to be negroid or not, it is difficult to decide. A similar figure from a lower level is seen in Pl. LXXVI, 25.

Dove.

The model dove with outstretched wings set on a little pedestal with a flared base (Pls. LXXI, 28; LXXVII, 11) is now a frequent find at all levels. Nos. 15, 23, 25 in Pl. LXXX are examples from the lower strata. I have traced the Elamite and Minoan affinities of these doves in the first book on Mohenjo-daro. But since then there has been unearthed from a very early stratum at Ur a dove of painted pottery that bears an even more striking resemblance to the Indus valley models than those already quoted.[1] It certainly seems that the dove was regarded with especial favour both in early Sindh and in Sumer. Whether there was a cult connected with it is not absolutely certain, though, as I have already pointed out, the bird seems to have been sacred to the goddess Ninkhar-sag in Sumer, and may have been associated in the same way with the goddess whose representations in clay are so often found at Mohenjo-daro.[2] It is

[1] Seen in the exhibition of antiquities from Ur at the British Museum, 1930.

[2] *Antiquity*, Dec. 1930, pp. 466-7.

certainly more than a coincidence that models of this bird, also with the wings outstretched, occur as early as the Neolithic age in Crete[1] where a mother-goddess was all powerful, in Sumer where the bird was definitely associated with the great goddess Ninkharsag, and also in the Indus valley where a goddess seems to have been the principal deity. In addition, Prof. Gordon Childe has pointed out that both doves and snakes were associated with the cult of a mother-goddess in Sardinia and Brittany.[2]

The broad fan-like tail, together with the way that the head is set back, suggests that No. 27 in Pl. LXXX also represented a dove or pigeon. This clay figure was once gaily coloured in green, red and black on a white slip, just as are locally made clay toys at the present day, and the pigments are fairly well preserved.

Domestic Fowl.

The undoubted hen in Pl. LXXIV, 5, is the first to be found at Mohenjo-daro. Of its species there can be no doubt, though two even more realistic representations occur among the pictographs on a seal found prior to 1927.[3] As in most of the bird models, there are holes for stick legs, and it was originally coloured like Nos. 10 and 12 in Pl. LXXVII and No. 27 in Pl. LXXX. The fowl with its food-dish in front of it seen in Pl. LXXX, 20, definitely proves that this bird was domesticated at Mohenjo-daro, unless, which seems improbable, a captive bird is represented. The domestic fowl is thought to have originated in India, and therefore would in all probability have been longer domesticated in that country than elsewhere.

No. 1 in Pl. LXXIV is a remarkable piece of life-like modelling, and though the bill is rather large for *Gallus domesticus* the comb is typical. From No. 7 in Pl. LXXVII with its remarkably aggressive attitude and cock's tail, we may perhaps infer that cock-fighting is a sport as ancient as the domesticated breed of fowls.[4]

Bones similar in their general structure to those of the domestic fowl have been found at Mohenjo-daro, and Col. Sewell remarks that in size, " they are for the most part considerably larger, than the present-day race of fowls," which he attributes to the deterioration of the fowl in this part of India.[5]

Peacock.

The broad tail and general build of the two bird-models in Pl. LXXX, 21, 22, suggest that they represent the peacock,[6] which is said to be indigenous to India. It is a sacred bird, especially among the Jāts, and its feathers are carried in certain ceremonies to ward off evil and are even smoked in pipes as a charm

[1] Evans, *Palace of Minos*, vol. I, p. 44.

[2] *Dawn of European Civilization*, p. 30. Only rarely do we find the snake represented at Mohenjo-daro ; it only appears for certain on some of the amulets.

[3] *Mohenjo-daro and the Indus Civilization*, pl. CXI, 338.

[4] The cock is the sign of the god Skanda, the son first of Agni, then of Śiva. In the Deccan this bird is said to be a manifestation of Śiva, and cocks are sacrificed to the god. Hopkins, *Religions of India*, 414-5 ; 537-8.

[5] *Mohenjo-daro and the Indus Civilization*, vol. II, pp. 662, 669.

[6] *Op. cit.*, pl. XCVI, 4.

against snake-bite.[1] There are two species of the peacock in India, but we cannot distinguish which these pottery models represent. The bird appears in the art of the Indus valley as models in clay or painted on pottery; and as far as I am aware it is not depicted in the early art of other countries, though its feathers were worn by a Minoan prince as a crest.[2] In later times it was frequently represented in Greek and Roman art.[3]

Bunting (?).

The crested bird illustrated in Pl. LXXVII, 6, is provisionally identified with the crested bunting; but in a model from a lower level (Pl. LXXX, 24), the crest is too far back for this bird to be represented.

Duck.

I do not hesitate in identifying the head, No. 16 in Pl. LXXX, as that of a duck, especially as the shoveller duck is carefully delineated among the signs on a seal found prior to 1927.[4] Many parts of Sindh at the present day are famous for water-fowl, and it is somewhat surprising that we have not found more representations of them.

Goose.

No. 10 in Pl. LXXVII undoubtedly represents a goose and is the first model of this bird to be found. Though now damaged, it was very carefully made and, moreover, still bears traces of polychrome decoration.[5]

The other bird models illustrated are difficult to identify and it must be left to the reader to decide for himself what species are represented.

The singing bird, No. 26 in Pl. LXXX, suggests that songsters were appreciated, and that birds were sometimes kept in cages seems to be indicated by No. 6 in Pl. LXXXI; the animal issuing from this cage is decidedly bird-like though the modeller, perhaps a child, has placed the legs too far forward. Similar model cages found in former years and represented as empty were thought to be insect-cages; from this particular model it now seems evident that they held something larger.[6]

It will be seen from this and the previous work on Mohenjo-daro that model animals, other than those made by children, form a considerable proportion of the smaller objects found; and that there are in addition the representations of animals on the seals, amulets and copper tablets. There can, then, be no doubt, I think, that there was a very definite animal cult amongst the Indus people; but whether these animals were actually worshipped or revered by all, or separately by different families or clans, is still unknown to us. In India

1 Crooke, *Religion and Folklore of Northern India*, II, p. 250.

2 *Camb. Anc. Hist.*, vol. II, p. 435. Possibly it is this bird which is shown in gravures from *Qala-Kent*; J. de Morgan, *Préhistoire Orientale*, III, p. 298.

3 Some of the Khonds worship this bird as a symbol of Earth and it may, therefore, have once been associated with an Earth-goddess; Hopkins, *Religions of India*, pp. 445, 536.

4 *Mohenjo-daro and the Indus Civilization*, pl. CVI, 93.

5 The goose-totem of the Sunthāls is also Brahmā's sign. Brahmā rides a goose (or flamingo); Hopkins, *Religions of India*, p. 534.

6 *Mohenjo-daro and the Indus Civilization*, pl. LXXXIV, 1, 2.

at the present day, many animals are associated with the various deities and are sacred on that account; or they are regarded with especial respect on account of favours supposed to have been conferred by them on gods and heroes in the past. Some of these beliefs may be a survival of totemism amongst the more civilized people; they certainly are in the case of some of the peoples of the wild. It is doubtful, however, whether totemism had much to do with the beliefs of the Indus Valley people, at least in that stratum of them that occupied the larger of their towns, for city life is not conducive to the propagation of the more primitive beliefs.

Upper Levels.

Plate LXXI.—No. 23 (SD 3319). Bronze 2·85 ins. long. This model buffalo is one of the finest animal figurines in metal that we have found at Mohenjo-daro. It is unfortunately very badly corroded; but when perfect it must have been quite outstanding. The lift of the head indicates most realistically that this animal is scenting possible danger, and the lashing tail[1] shows that the suspected danger is no ordinary one. In fact, the animal is thoroughly roused and shows it. This model was apparently cast by the *cire perdue* process—though of this we cannot be absolutely certain—for there is a long oval flaw in the middle of the back which had been carefully filled in with metal.[2] This figure should, I think, be dated to the Late Period as it was found on a floor of the Late III Phase. Locus: SD Area, Bl. 6, rm. 23. Level: – 2·9 ft.

No. 25 (SD 2722). Cherty limestone. 5·25 ins. long. Portion of a large stone figure of a bull with sockets for eyes, ears and horns. Not particularly well made, but interesting on account of its once great size. As is usual in the pottery figures, a garland, apparently of some woven material, is worn round the neck. Hair and wrinkles are boldly cut, but the chisel marks have not been entirely removed. The eyes, ears and horns, which were socketed in, were perhaps made of rare materials and were removed on account of their value when the figure was smashed. Locus: SD Area, Bl. 1, rm. 67. Level: + 5·7 ft.

No. 26 (SD 3173). Pottery; cream slip. 3·65 ins. long. Badly broken model of bull; remarkable for a design all over its body of roughly made circles impressed with a semi-circular tool which was used twice for every marking. This model is probably an attempt to represent a spotted animal, and it therefore seems likely that some of the cattle of Mohenjo-daro were similarly marked to cattle of ancient Egypt and of South Africa to-day. It will be noticed that the animal has a slight hump, but I am doubtful whether this model really represents a humped breed, as wherever it appears the hump is always of a large size. Possibly this model represents a cross-bred animal. Locus: SD Area, Bl. 6, rm. 20. Level: – 0·9 ft.

No. 27 (SD 3201). Pottery; no slip. 2·08 ins. high. Hollow figure of a female monkey, apparently wearing a collar and seated with hands on knees. The fingers and toes are indicated by roughly made incisions and the eyes by round pellets of clay with a dent in the middle to represent the pupil. That the face is that of a monkey is evident on comparison with the animal in Pl. LXXX, 2. As this little figure stands well on a broad flat base, it may have been used

[1] In most of the representations of buffaloes, whether on the seals or in clay, the tail is hanging down.

[2] *Ann. Rep. Arch. Surv. Ind.*, 1927-8, pl. XXV, fig. 4.

as a gamesman, like the figure in Pl. LXXVI, 17, that was apparently used for the same purpose. Locus: SD Area, Bl. 8, rm. 1. Level: – 1·4 ft.

No. 28 (SD 2799). Pottery; no slip. 1·75 ins. high. Dove with open wings and tail, mounted on the usual pedestal with a flared base. Locus: SD Area, Bl. 8, rm. 5. Level: – 4·5 ft.

No. 29 (SD 3307). Shell. 1·4 ins. long. This little model, of a type that is new to us, may once have been a handle, perhaps of a spoon; the fracture where part is missing had been smoothed off so that the remaining piece might serve some other purpose. It is difficult to say what animal it was intended to represent; it looks more like a snake than anything else, except for the turned-up nose. It is unperforated and can hardly have served as an amulet unless it was contained in a case. Locus: SD Area, Bl. 6, rm. 2. Level: – 2·4 ft.

Plate LXXIV.—No. 1 (DK 11716). Pottery, without a slip. 2·2 ins. high. This bird is probably a model of a fowl, but some would see in it a species of goose.[1] Locus: Bl. 14, ho. I, rm. 4. Level: – 8·2 ft.

No. 2 (DK 12224). Pottery; no slip. 2·9 ins. high. A fowl or dove on a narrow pedestal. A hole, 0·2 in. in diameter, in the back near the tail produces a whistle if blown into. Locus: Bl. 13, ho. II, rm. 7. Level: – 9·2 ft.

No. 3 (DK 11686). Pottery, with no slip. Present height 1·32 ins. A bird's head and neck, identified by the Zoological Survey as representing a pheasant, such as *Gennaeus hamiltoni, Griff.*[2] Carefully modelled. A knife was used to remove surplus material. Locus: Bl. 13, ho. III, rm. 19. Level: – 6 ft.

No. 4 (DK 11858). Pottery, with a red slip. 1·55 ins. high. A dove, as shown by its fan-shaped tail. The base of the pedestal on which it once stood is missing. Locus: Bl. 25, ho. II, rm. 15. Level: – 8·4 ft.

No. 5 (DK 12684). Pottery, with traces of a fine white slip which was doubtless once coloured: indeed, a black pigment still remains in the incisions on the tail. The set of the tail and the remains of a comb leave no doubt that this little model has the characteristics of *gallus domesticus*. The wings droop slightly and there are two holes to take stick legs. Carefully modelled, with the feathers indicated by incised lines. Locus: Bl. 18, rm. 110. Level: – 5·8 ft.

No. 6 (DK 11229). Vitreous paste, with no trace of colour. 0·99 in. long. Couchant figure of a ram with a hole pierced laterally through the shoulders for suspension. Made in a mould and rather roughly finished. *Cf.* No. 13 in Pl. LXXVII. Locus: Bl. 14, ho. II, rm. 16. Level: – 5 ft.

No. 7 (DK 11534). Pottery, thickly coated with a red slip. The moveable arm of a figure such as No. 3 in Pl. LXXVIII. Somewhat roughly made, with no attempt to represent the hand. Locus: Lane bet. rms. 30 and 13, Bls. 14 and 15. Level: – 6·9 ft.

No. 8 (DK 11847). Pottery, with traces of a cream slip. 3·53 ins. high. Hole in base, 0·3 in. in diameter. The hollow head of a bull with the horns and one ear missing. I am inclined to think that this head, and also the one seen in Pl. LXXVIII, 6, perhaps formed part of a standard. This model head is much too big to be a toy, and its being hollow certainly suggests that it was

[1] This is also the opinion of the Director of the Zoological Survey of India, to whom I sent the figure for identification.

[2] Compare also with the crested duck.

purposely made light to be carried about. The treatment of the eyes precludes its being the work of a child, for a child would have used pellets of clay for the eyes instead of cutting away the clay from round them. The lack of finish suggests that it was not a cult object. Conceivably this head was made to be carried in procession by an ordinary individual, perhaps a child. Locus: Bl. 23, ho. I, rm. 1. Level: – 6·9 ft.

Nos. 9 and 10 (DK 11401) (see also Pl. CXXV, 19). Glazed paste, with no trace of colour. 1 in. long. A bird with outstretched wings, seen from above in No. 9 and from below in No. 10, with the head to the right. Has a hole at the back to thread it on a necklace. It is difficult to identify this bird, but its very short beak suggests either a hawk or a dove. The first specimen of its kind to be found at Mohenjo-daro. Locus: surface of ground. Level: – 4·4 ft.

No. 11 (DK 11959). Shell. 0·9 in. high. A very carefully carved bull's head with sockets for the eyes, ears and horns, which were doubtless made of some rare material afterwards removed. This head was probably cemented by the flat surface at the back to a body; the latter could hardly have been of shell, for it would have been difficult to find a piece of shell of sufficient thickness for the purpose. The hair is carefully indicated by means of incised lines, and a garland is shown worn round the neck. The wrinkles above the eyes are also a feature of early Sumerian art, as already noted by the late Dr. Hall,[1] but there is no reason to think that this head was not of Indian manufacture. Locus: Bl. 9, ho. X, rm. 85. Level: – 6·6 ft.

No. 12 (DK 10813). Shell. 1·3 ins. high. A very similar head to the above, but not nearly so well finished as there are sockets for the horns only. Locus: Bl. 18, rm. 7. Level: – 5·7 ft.

No. 13 (DK 10416). Pottery, with a cream slip. 2·5 ins. high. This model animal is exactly the same type as No. 3 in Pl. LXXVIII, but a well-pierced hole, 0·14 in. in diameter, passes through the figure from back to front, as shown by the cord in the photograph. Another hole, of similar diameter but 0·95 in. deep, passes upwards from the soles of the feet to support the figure on a rod. The object of the first mentioned hole is very uncertain. It can hardly have been intended to take a cord as the centre of gravity would have been too low; and yet the very smooth bore suggests that, if the figure was not actually suspended by means of it, a curved rod was perhaps passed through it with weights attached so that the figure might be balanced on a stand.[2] On the other hand, the very similar figure (Pl. LXXVIII, 3) is not pierced right through; there are merely deep holes at front and back. Locus: Bl. 14, ho. IV, rm. 29. Level: – 3·2 ft.

Nos. 18 and 19 (DK 10781AC). Bronze. 2·18 ins. long by 2·12 ins. high, including the tang. Found in the vase seen in Pl. CXIV, 8, in association with many other copper and bronze objects which are discussed in Chapter XIII.

A couchant goat with lateral, spiral horns, tied to a post by means of a broad collar. Of excellent workmanship, and in a splendid state of preservation, except for the bent front leg. Judging from the careful detail, this little model was made by the *cire perdue* process. It has a long, flat tang to support

[1] Hall and Woolley, *Al-'Ubaid*, p. 29.

[2] Native-made, balanced figures, not unlike this one in conception, are common toys in India at the present day. That they were also known in ancient Egypt is seen in Petrie, *Objects of Daily Use*, p. 59.

it on a stand. The ears were very carefully fashioned, and there is a slight trace of a beard below the chin. The eyes are hollows which were perhaps inlaid.[1] It is difficult to decide whether this model represents an animal tied up for sacrifice or an ordinary pet. We can fairly safely infer from a seal and sealing[2] found in a previous season that the goat was sacred, for it appears with a human head in an undoubtedly religious scene; but even if the animal were sacred that would not have prevented its being sacrificed on certain occasions. The broad scarf round the neck may have had to do with some important event, not necessarily a sacrifice but attendance at certain ceremonies or festivals (*cf.* the garlands that adorn some of the model bulls). Possibly, the goat was itself worshipped as the vehicle or manifestation of a certain deity; but with the limited evidence that we have, we are treading on delicate ground in making this suggestion. I cannot help thinking that this model once formed one of a group, for if it was an isolated object of worship it would hardly have been shown as tied up. It is undoubtedly the best preserved model of an animal in metal yet found at Mohenjo-daro. Locus: Bl. 14, ho. III, rm. 19. Level: – 4·8 ft.

No. 20 (DK 10935). Hard, vitreous paste with a yellow surface and white in the interior, with traces here and there of green glaze. Now 1·38 ins. long. Unfortunately, this model is badly broken and the fore-legs and head are missing. The broad, flat ears laid back against the body show it to represent a hare —the first certain representation of this animal in the round to be found at Mohenjo-daro, though it frequently appears on the copper tablets.[3] The modelling is somewhat crude, the hind legs being awkwardly situated below rather than at the sides of the animal. That it was worn as an amulet is proved by the remnant of a lateral hole pierced between the base of the ears and the head. Locus: Bl. 14, ho. II, rm. 8. Level: – 5·9 ft.

Plate LXXVII.—No. 1 (DK 3920). Bronze (?). Length 1·4 ins. Antelope with very slightly curved horns, identified by some as the Indian gazelle or *chinkara*,[4] an animal which frequents open country and is common in India. The same beast appears to be represented on a painted cup from Nal.[5] This model was carefully cast and finished, but corrosion has obscured some of the details. All four hooves have disappeared. The attitude with the head slightly raised is very natural; the animal is evidently alert. Locus: First Street (10). Level: – 10 ft.

No. 2 (DK 7470). Pottery, with a dark red slip. 4·1 ins. long. An animal with short straight horns which may have been intended to be an antelope, though it has a long tail. Round pellets for eyes but no other details of face or body shown. Locus: Bl. 7, ho. VII, rm. 58. Level: – 9·4 ft.

No. 3 (DK 10470). Pottery, with no slip nor traces of colour. Length 2·32 ins. With its downward drooped wings, this may represent a dove; what remains of the neck shows that the head was set well back, suggesting the characteristic mating posture of the *Columbidae*. Two holes in the base of the figure just below the neck evidently took small peg legs. Very careful work as though

[1] These inlays were not found in the jar and perhaps had fallen out before the figure was put away.

[2] *Mohenjo-daro and the Indus Civilization*, pl. XII, 17, 22; and in the present book, Pls. LXXXII, C; XCIV, 417; XCIX, A.

[3] *Op. cit.*, pl. CXVII, 5, 6. The hare is still a very common animal in Sind.

[4] *Gazella Bennetti.*

[5] Hargreaves, *Mem. Arch. Surv. Ind.*. No. 35, pl. XVIII. fig. 9.

made in a mould and touched up afterwards. Locus : Bl. 9, ho. X, rm. 83. Level : – 5·2 ft.

No. 4 (DK 3481). Pottery, with a red slip. 2·8 ins. high. A bird resembling the ordinary domestic fowl set on a little pedestal with a flat base. Though its light weight suggests that the body is hollow, it does not seem to have been a rattle. Round pellet eyes, and tail much like that of the jungle cock. Locus : Crooked Lane, bet. Bls. 3 and 4. Level : – 9·4 ft.

No. 5 (DK 10808). Pottery, with a cream slip. Height 1·41 ins. Roughly modelled bird, probably a dove, on a small stand with a concave base. No details except pellets for eyes. Locus : Bl. 8, ho. III, rm. 46. Level : – 4·8 ft.

No. 6 (DK 5835). Pottery, without any slip. 1·4 ins. high. A small rough model of a bird whose crest and long tail suggest the crested bunting.[1] Its stand has a slightly concave base. Locus : Bl. 10, ho. I, rm. 3. Level : – 10·9 ft.

No. 7 (DK 7896). Pottery, with neither slip nor traces of colouring. 1·65 ins. high. Very careful work as if made in a mould and trimmed up afterwards. Possibly a dove (*cf.* No. 3 in the same plate) ; or from its aggressive attitude might be a fighting cock. Of the three holes in the base, two evidently took the stick legs and the third a support to be fixed in a pedestal. Locus : Bl. 7, ho. IX, rm. 30. Level : – 11·6 ft.

No. 8 (DK 10303). Light yellow steatite. 1·1 ins. long. This little figure which seems to be unfinished has quite a Sumerian look about it. It is evidently intended to represent a ram in a couchant attitude, models of which, nearly always faience, are fairly common at Mohenjo-daro. Though there is no perforation, it was probably intended like No. 9 to be worn as an amulet. Locus : Bl. 8A, rm. 33. Level : – 3·9 ft.

No. 9 (DK 12858). Faience, with traces of apple-green glaze. 1·02 ins. long. Eyes and nostrils indicated by small pittings and the mouth by a cut. Perforated longitudinally, and obviously intended to be worn on a cord as an amulet. This is conceivably meant for a couchant ram, though the usual curled horns are not indicated. Very roughly finished. Locus : Bl. 9, ho. IX, rm. 66. Level : – 10·8 ft.

No. 10 (DK 4564). Pottery, with traces of a thick white slip which was probably once coloured. 1·73 ins. high. To my mind this figure represents a goose,[2] though a small fracture at the top of the head suggests that perhaps there was originally a crest which is missing. Two holes to take stick legs. Well modelled but roughly finished. Locus : Bl. 10, ho. IV, rm. 73. Level : – 10·5 ft.

No. 11 (DK 12936). Pottery, with a cream slip. 2·75 ins. high. Dove with outstretched wings and tail, mounted on a pedestal with a flared concave base, in which there is a roughly made vertical hole, 0·55 in. deep and 0·17 in. in diameter. Perhaps this bird was supported on a stick while being modelled. It will be remembered that there is a third hole in No. 7 in the same plate, which very possibly served the same purpose. Quite well finished, though with no small details save the round pellet eyes. Part of the tail is missing. Locus : Bl. 8, ho. III, rm. 50. Level : – 11·8 ft.

[1] *Melophus melanicterus* (*Gmelin*). According to Whistler, its attitude when walking is peacock-like ; *Popular Handbook of Indian Birds*, p. 177. This model has also been identified as the bulbul and again the hoopoo.

[2] I am told, however, that the neck is too long for my identification, and that the figure more probably represents a duck.

No. 12 (DK 10745). Pottery, with slight traces of red and green paint on a white slip. 2·25 ins. long. This object is shown from underneath, as the upper part is comparatively flat. The two holes took the stick legs. As the head is missing, we cannot definitely identify this bird, though it is probably a dove since it so closely resembles No. 11. It looks as if the under part had been fashioned in a mould. Locus: Bl. 8, ho. III, rm. 46. Level: −4·3 ft.

No. 13 (DK 4566). Vitreous paste, now white. 1 in. long. A couchant ram perforated from side to side at the shoulders to serve as a necklace amulet. Rather roughly modelled. Locus: Crooked Lane, bet. Bls. 3 and 4. Level: − 9·6 ft.

No. 14 (DK 5951). Pottery, with a red wash. 3·15 ins. across the horns. Roughly modelled. Head with the long, spiral, lateral horns of a goat, an animal which seems to have been sacred among the Indus Valley people. It seems to have been supported on a stick, for which there is a rough hole averaging 0·8 in. in diameter by 0·3 in. deep. No details other than round eyes and quite indefinite ears are to be seen. Locus: Bl. 7, ho. I, rm. 19. Level: − 11·5 ft.

No. 15 (DK 4091). Bronze (?). 1·28 ins. long. Figure of a ram in a couchant position. Though carefully made, corrosion has removed much of the detail. A small pit on the shoulders suggests that it was intended to drill a hole to take a cord as in No. 13; if so, this little figure was evidently intended to have been worn as an amulet. Locus: Bl. 9, ho. IV, rm. 6. Level: − 6·8 ft.

No. 16 (DK 8455). Bronze, 0·7 in. long. Dog with a short, powerful-looking muzzle and the tail tightly curled. A thick collar seen round the neck. Evidently well modelled, though it has suffered greatly from salt. Locus: Bl. 12, ho. I, rm. 11. Level: − 11·9 ft.

No. 17 (DK 11454). Pottery. 1·18 ins. long. Small dog with a curled tail and lop ears. Nostrils and mouth not indicated, but the eyes are represented by round pellets. Roughly modelled, possibly by a child. Locus: Central Street, bet. Bls. 9 and 18, rms. 90 and 30. Level: − 8·2 ft.

No. 18 (DK 3391). Pottery, formerly covered with a red wash. 3·5 ins. long. A curious, dog-like beast with broad erect ears and a very definite beard roughly incised to represent the separate hairs. Both ears and nostrils are further elaborated by holes. The pellet eyes are now missing, and so is the tail. This animal so closely resembles No. 7 in Pl. LXXVIII, except for being broken, that we might almost assume that it also once lay on a plinth. But what kind of animal is here represented is left to the imagination of the reader. Locus: Bl. 9, ho. III, rm. 29. Level: − 1·9 ft.

No. 19 (DK 12940). Faience, with no trace of glaze left. Soft white paste resembling powdered steatite. 1·9 ins. long. Dog with long pricked ears, and the eyes, nostrils and mouth represented by indentations. Badly weathered, with portion missing. Locus: Bl. 9, ho. IX, rm. 65. Level: − 11·5 ft.

No. 20 (DK 10538). Squirrel. Vitreous paste, turquoise-blue in colour. 0·9 in. high. The three stripes down the back are indicated by a purplish-brown, doubtless a manganese paint. The animal, in characteristic pose, is shown with the fore-paws to the mouth and the tail held close up along the back. This little model, of which we already have several duplicates, was probably worn as an amulet on a cord passed through the small aperture between the fore-legs and the neck. Locus: Bl. 9, ho. I, rm. 47. Level: − 3·4 ft.

No. 21 (DK 3951). Pottery, with the head only coated with a red wash. 3·11 ins. long. This turtle, of which the underside is shown in the illustration, was quite ingeniously made. Two separate oval pieces of clay were clapped together to represent the body, the near ends of the head, tail and flippers being inserted between the two. The carapace is more gently curved than in the original animal, and the sternum is markedly concave. The eyes are indicated by minute, round, flattened pellets, and the mouth not at all. Well made, but roughly finished. Locus: Bl. 3, ho. VI, rm. 40. Level: – 11·5 ft.

No. 22 (DK 5863). Pottery, with traces of a red wash. 4·1 ins. long. An unusually complete model of a rhinoceros. The ears are rather larger than they should be, though their form is correct. The eyes are represented by pellets and the mouth by a gash. The heavy folds of skin-like armour-plate which are characteristic of this animal are indicated by broad strips of clay pricked all over to represent its peculiar warty excrescences. The tail is missing. Two rough vertical incisions on each side of the body represent other folds of skin. Locus: Fore Lane, South of Bl. 10 (IV). Level: – 11·3 ft.

Plate LXXVIII.—No. 1 (DK 4699). Pottery, with a cream slip. 3·17 ins. long. Roughly modelled bull. Both horns missing. Plain, round pellets for eyes. No markings of any description; apparently the work of a child. Both the fore and hind-legs are joined; no attempt was made to separate them even by a line—but for this the modelling of this animal is fairly good. Locus: Bl. 9, ho. VII, rm. 17. Level: – 9·1 ft.

No. 2 (DK 8162). Faience, with traces of a dark red (?) glaze. Soft, white paste, possibly powdered steatite. 0·82 in. high. Head of a monkey with incised holes to represent eyes, ears and nostrils, and a narrow slit for the mouth. The parting of the hair on the top of the head is carefully indicated. Quite creditable workmanship. Locus: Bl. 9, ho. VIII, rm. 20. Level: – 10·2 ft.

No. 3 (DK 10619). Pottery, with traces of a thick red slip. Compare with Pl. LXXIV, 13. 2·91 ins. high. Monkey (?). Nothing to indicate the eyes, which may have been painted. Mouth a mere gash, and the nostrils represented by minute holes. The arms are missing, but that they were moveable is proved by the horizontal hole, 0·13 in. in diameter, which runs through the shoulders from side to side, through which a rod was doubtless passed on which were swung the arms. The lower extremities are missing, but a small vertical hole suggests that the figure was supported on a rod. The anus is indicated by a deep pit, and there is a second hole in front just below the abdomen. Carefully made and apparently smoothed over with a rasp. Locus: First St. east of Bl. 6A, rm. 41. Level: – 8·2 ft.

No. 4 (DK 11347). Faience, from which all traces of glaze have disappeared. Soft white paste resembling granulated steatite. 2·03 ins. high. A monkey squatting with its hands clasped round the knees. Fingers and toes indicated by roughly incised lines. The hair is parted on the top of the head, and the eyes, nostrils and mouth are represented by deep pits. This figure, on the whole well modelled, may be unfinished as there are no signs of glaze, though this might easily have been destroyed by long sojourn in saline soil. Locus: Bl. 8A, rm. 45. Level: – 8·2 ft.

No. 5 (DK 7893). Pottery, with a cream slip. 4·13 ins. long. Model animal in an unusually good state of preservation. The incised marks on the horns perhaps represent corrugations, in which case the animal is perhaps the

Gaur,[1] whose horns are corrugated at the base and are set as in this model. The gaur is stated to inhabit mixed hill and forest land.[2] This model is somewhat roughly made, the mouth being represented by a mere slit. Locus: Bl. 8, ho. II, rm. 17. Level: −7·2 ft.

No. 6 (DK 12431). Pottery, once coated with a light red slip. 3·68 ins. long. This very interesting head, obviously that of a bull, seems never to have had a body; in its square flattened base[3] there is a large hole, 0·71 in. in diameter at its mouth, 1·39 ins. deep, and tapering slightly to 0·59 in. at the base, and it seems that the head was once supported on a staff. The eyes were indicated by making a couple of slits in which small round pellets were inserted. The wrinkles round the eyes and the hair between them are represented by incisions made with a point. The nostrils are deep, lunate cuts, and the mouth another incision of the same shape, but not quite so deep. Holes in appropriate places indicate that both the ears and horns, possibly of some other material, were inset.[4] The modelling and finish are rather rough, but the general effect is good, and powerful as befits the animal represented. Certainly the work of an experienced modeller. Locus: Bl. 8, ho. III, rm. 47. Level: −9·1 ft.

No. 7 (DK 10721). Pottery, once coated with a cream slip. 4 ins. long. This animal cannot be satisfactorily identified. Either a dog or some feline animal may be represented by this model. The mouth is unusually wide, and is, moreover, emphasized by definite lips being made with narrow strips of clay. The flat, round, pellet eyes have a deep hole incised in the centre of each, and other holes represent the nostrils. The most striking feature about this figure, however, is the broad beard which juts out with lines incised upon it to represent the hair, a beard which is unknown on any animal. Very much the same kind of beard is seen on the model pictured in Pl. LXXVII, 18, and also the human figurine in Pl. LXXII, 8–10. This animal lies on the ground, apparently with a bone beneath its fore-paws, and the hind legs are outstretched at the side in an attitude common to many creatures. Either claws or talons are crudely represented by incisions. Roughly modelled and finished, though especial care was evidently taken with certain details. Locus: Bl. 8, ho. III, rm. 30. Level: −3·2 ft.

No. 8 (DK 5298). Pottery, with a light red slip. 1·88 ins. high. This is possibly a monkey climbing a tree. The eyes are represented by round pellets, the nostrils and mouth by slight incisions. Though the tail is missing, its stump suggests that it was held close to the legs. Very roughly modelled and finished. Locus: Bl. 4, rm. 14. Level: −8·2 ft.

No. 9 (DK 11717). Pottery, with traces of a light red slip. 2·36 ins. high. Similar to No. 8, except that the tree or post upon which the animal is climbing is rather larger. Roughly made and finished. Locus: Bl. 9, ho. XII, rm. 90. Level: −6·9 ft.

[1] *Bos gaurus.*

[2] Stockley, *Big Game Shooting in the Indian Empire*, pp. 104-6.

[3] This flattened portion is at the back of the head.

[4] The surface round these holes is badly broken and it is possible that the horns and ears were made of some valued material and that the damage was done in tearing them from their setting.

No. 10 (DK 3374). Pottery, with a light red slip. 2·1 ins. long. This figure should have been included with the human figurines as it represents a crawling child. The pellet eyes are slightly oval, and the mouth and lips are represented as in other human figurines by incising a line on a narrow added strip of clay. Each of the slightly projecting ears has a ear-holé. The head is covered with a number of small circular disks, obviously intended to represent an infant's curls. There was also a necklace, but all that remains is a medallion still sticking to the breast, with two crossed lines incised upon it. A bangle is shown on the right arm. The buttocks are clearly indicated, and also the anus and sexual organs. Locus : Bl. 7, ho. III, rm. 40. Level : −3·2 ft.

No. 11 (DK 4732). Pottery, with a light red slip. 4·7 ins. long. Its once arched tail, small erect ears and the shape of the head incline me to think that this was a model of a horse. The eyes are slightly raised and the pupils indicated by incisions. Traces of a white substance in each of these incisions suggest that some other material was inlaid.[1] The nostrils also are indicated by holes, and the mouth is represented as slightly open. It is unfortunate that so much of this figure is missing, as the model of a horse of so early a date as 2,500 B. C. would be of great interest. The very careful modelling and finish preclude this being the handiwork of a child ; and the comparatively slender build sets it apart from the other animal models. Locus: Bl. 12A, ho. II, rm. 21. Level: −8 ft.

No. 12 (DK 5472). Pottery, with traces of a light red slip. 5·02 ins. high. A very similar figure to No. 3, but certain details have survived better. Though there is a flat base upon which the figure will not stand, a hole in it, 0·3 in. in diameter, shows that it was intended, rather, to be supported on a stick. A hole which perhaps represents the navel communicates with the hollow interior of the figure. A fracture at the back suggests that the prominent buttocks seen in No. 3 were also a feature of this specimen ; and, as also in No. 3, the ears show that this figure was not intended to represent a human being. Roughly modelled and finished. Locus: Bl. 7, ho. VII, rm. 58. Level: −10·6 ft.

Lower Levels.

Plate LXXIX.—No. 1 (DK 9452). Pottery ; cream slip. 4·3 ins. long. Roughly modelled, hollow figure of a wild boar. The pupils of the eyes are represented by small, round, flat pellets of clay set in slits in the head. Locus : Fore Lane, bet. Bls. 1 and 10 (1). Level : −25·3 ft.

No. 2 (DK 9599). Pottery ; no slip. 1·7 ins. long. Small figure of male rhinoceros very carefully made, even to the addition of the sexual organs. Horn missing. In place of the usual strips of clay to represent the armour-like hide of this animal, the body and even parts of the head are pricked all over, a somewhat curious procedure since the rhinoceros is comparatively hairless and on the animals of Mohenjo-daro pricking usually represents hair. Possibly, in this case it was intended to depict the tubercles that are common on the hide of this animal and the modeller rather overstepped the limits of their distribution. Locus : Bl. 7, ho. VIII, rm. 16. Level : −26·5 ft.

No. 3 (DK 7782). Pottery ; no slip. 1·41 ins. high. Rhinoceros, roughly made ; no plastic additions, though rough incisions indicate the folds round the neck. Horn missing. Locus : Bl. 9, ho. VII, rm. 48. Level : −18·5 ft.

[1] The substance could hardly have been the remains of paint ; this figure seems never to have had any other colour than the usual red wash.

No. 4 (DK 8710). Pottery; no slip. 2·08 ins. high. Dog with up-curled tail, the greater part of which is missing. Ears upright and fairly long. Fore- and hind-legs respectively joined together. Locus: First St. (9). Level: −20·8 ft.

No. 5 (DK 9341). Bronze. 0·64 in. high. Small model ram with curled horns and short upright tail. Pierced longitudinally to be worn as an amulet. Carefully made, but rather short in the body, for which reason it was at first thought to be a dog. Legs made separate; are now slightly bent. Locus: Bl. 1 (Palace), S. E. wing (I), rm. 17. Level: −19·3 ft.

No. 6 (Dk 8194). Bronze. 0·69 in. high. Dog with collar round neck. Prick ears and upright tail. Short mastiff-like muzzle. Fore- and hind-legs cast together; but it may have been intended to separate them later by cutting. Well made, but very much corroded. Locus: Bl. 9, ho. II, rm. 9. Level: −12·2 ft.

No. 7 (DK 6185). Pottery; traces of red slip. 1·65 ins. high. Model of animal which is difficult to identify. Not an elephant, as it never had a trunk. The prominent ears, now broken, suggest a hare; *cf.*, No. 9 in the same plate. Hollow, though not a rattle. The corpulent, over-fed look of this model suggests that the hare, if it be this animal, was sometimes kept as a pet. The very small tail is held to one side and not upright, as is normally the case in hares and rabbits. Locus: Bl. 10, ho. I, rm. 2. Level: −18·3 ft.

No. 8 (DK 8582). Pottery; no slip. 2·2 ins. long. A hollow, round bodied animal similar to No. 7 but with the ears practically perfect. The tail hangs, instead of being upright. Locus: Bl. 9, ho. VIII, rm. 18. Level: −14·3 ft.

No. 9 (DK 7976). Pottery, with a red slip. 1·6 ins. high. Hollow, clay model with long ears, which certainly resembles a hare more closely than Nos. 7 and 8. No tail now present. Long ears sloping backwards. The body and legs were made first, and the head and ears added afterwards; the marks of the joins are clearly evident. Locus: Low Lane, bet. Bls. 6 and 7. Level: −15·5 ft.

No. 10 (DK 8802). Pottery, with a cream slip. 1·57 ins. high. Hollow interior, with which a small rectangular hole between the legs communicates. Same type of animal as in Nos. 7-9, but the ears are rather smaller. Locus: First St. (1). Level: −22 ft.

No. 11 (DK 8758). Pottery, with a cream slip. 3·66 ins. long. Solid. Dog with heavy collar round neck. Short prick ears; apparently upright tail, now broken. Locus: Bl. 9, ho. III, rm. 35. Level: −15·8 ft.

No. 12 (DK 8280). Pottery; no slip. 4·28 ins. long. Spirited figure of dog wearing a stout collar. Short upright tail and broad prick ears. Nostrils and anus indicated, but no other organs. Very rough workmanship. Locus: Bl. 7, ho. III, rm. 46. Level: −16·7 ft.

No. 13 (DK 8324). Pottery, with a red wash. 2·6 ins. high. Hollow model of elephant; roughly fashioned but shows the characteristic spinal ridge. Models of this animal in clay are rare, and this is the first that we have found with the trunk intact. The figure was modelled with considerable fidelity; and though the eyes are over large, they are in the right position and appear very lifelike. Locus: Bl. 7, ho. III, rm. 44. Level: −16·6 ft.

No. 14 (DK 7976). Another view of No. 9.

No. 15 (DK 9818). Pottery, with a cream slip. 3·28 ins. long. Dog with short upright tail, and a very heavy collar, as in No. 11. The ears, unfortunately, are broken, but they were evidently pricked. Locus: Bl. 7, ho. I, rm. 3. Level: −33·3 ft.

No. 16 (DK 9540). Pottery, with a cream slip. 1·6 ins. high. Humped bull, with fore- and hind-legs joined. A little incised work round the head. Locus: Bl. 7, ho. IX, rm. 29. Level: −26·9 ft.

No. 17 (DK 9574). Pottery; no slip. 1·5 ins. high. Humped bull. Incised work on head; two lines round neck represent a collar or wrinkles in the skin. Both pairs of legs joined. Locus: Bl. 7, ho. I, rm. 15. Level: −26·8 ft.

No. 18 (DK 6115). Bronze. 1·5 ins. high. No. 20 is an enlarged illustration of this well modelled animal which, as far as can be judged, is a solid casting. That it represents a bull and not a bison is indicated by the carriage of the head. Rather roughly made; but probably it was intended to trim it up afterwards, which seems never to have been done, though corrosion may have removed the finer details. Locus: Fore Lane, outside Bl. 10 (III). Level: −14·8 ft.

No. 19 (DK 5379). Bronze. 1·5 ins. high. Casting of a bull, now badly corroded, standing on a bar with a ring beneath. An exactly similar figure was found at Mohenjo-daro prior to 1927,[1] and the two were probably made in the same mould. The only difference is that the more recently found specimen has a tail-like projection at the back which finishing would have removed, as it is merely surplus metal left by the opening in the mould through which the metal was poured. It is interesting to note that the ears of the animal were tied to the horns, a custom which does not pertain in Sindh to-day and whose purpose is a mystery. This little model could hardly have been worn as an amulet, for it would have hung upside down. Possibly, the rings were used to secure these objects to harness in some way, and reins passed over the bars beneath the animals.[2] The hump is not so well marked as in the earlier example. The carriage of the head suggests the short-horned bull as pictured on the seals rather than the humped bull. Locus: Loop Lane, bet. Bls. 12 and 12A. Level: −13·8 ft.

No. 20 (DK 6115). See No. 18 above.

No. 21 (DK 4964). Bronze. 1·1 ins. long. A very badly corroded model of a humped bull with both fore- and hind-legs united. Again, the ears are tied to the horns. Locus: Loop Lane, bet. Bls. 9A and 12A. Level: −16 ft.

No. 22 (DK 8418). Pottery, with a thick red slip. 3·8 ins. long. Hollow model of bull's head with both horns and one of the ears missing. The hole seen in the photograph is accidental and does not pierce the ear. This head was made in a mould, and the horns and ears were added afterwards. A straight narrow cut represents the mouth, two holes the nostrils, and there are incised lines round the muzzle. In the slightly concave base, a hole 0·58 in. in diameter may have served to attach the head to a staff; as I have before suggested these bull's heads were perhaps carried in processions. This hole would have been unnecessarily wide for merely affixing the head to something as an ornament. Locus: First St. (18). Level: −18·4 ft.

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXLIV, 2.

[2] *Cf.* rein-rings from Kish and Ur; *Antiquaries Journal*, vol. VIII, pl. LXVIII, fig. 2.

No. 23 (DK 7154). Pottery, with a thick red slip. 4 ins. long. The horns and ears of this hollow bull's head are, unfortunately, badly broken ; but they were evidently made in one piece with the head which was not made in a mould. The eyes are represented by oval pellets of clay, the mouth by a simple straight cut, and the nostrils by two shallow holes. A hole, 0·32 in. in diameter, in the flat base perhaps served to attach this head to a rod. Locus : Bl. 5, ho. II, rm. 7. Level : –14·9 ft.

No. 24 (DK 8910). Steatite. 2·81 ins. long. Well-carved model of a bull, whose separately made horns and ears were fixed in sockets and may have been of another material. Other sockets served for the attachment of the sexual organs, and the tail which lay in a groove between the buttocks. A larger hole, 0·13 in. in diameter and 0·5 in. deep, between the legs suggests that this figure was supported on a stand. The wrinkles and hair on head and neck, and the garland round the latter had been carefully worked with a graver. The eyes may not have been inlaid as the sockets are very shallow. The figurine seems not to have been glazed, but merely coated with a white slip like that on the seals. Locus : Bl. 7, ho. II, rm. 93. Level : –21·4 ft.

No. 25 (DK 9078). Pottery, with a red slip. 3·15 ins. high. Humped bull with a scarf round the neck. Flat pellets of clay with a central incision represent the eyes. The head is irregularly punctuated between the horns to represent hair. Locus : Bl. 8, ho. I, rm. 5. Level : –12·1 ft.

No. 26 (DK 9656). Pottery ; no slip. 0·9 in. high. Carefully made model of a humped bull with inset eyes and united fore- and hind-legs. Locus : Bl. 7, ho. IX, rm. 29. Level : –32·7 ft.

No. 27 (DK 9577). Pottery, with a cream slip. 1·7 ins. high. Carefully made model of bull with the wrinkles above the neck carefully delineated. Horns nearly complete. Locus : Bl. 7, ho. I, rm. 14. Level : –26·1 ft.

No. 28 (DK 5923). Shell, 1·6 ins. long. The upper portion of a bull's head, which once had a second piece fitted to it below and a third against the concave back of the head, with the horns and ears, which were perhaps of some other material, fixed to it. The eyes, whose shallow sockets, 0·2 in. in diameter, were drilled out, were once inlaid. If this head was made entirely of shell, it had of necessity to be made in more than one piece, as none of the shells used at Mohenjo-daro were sufficiently thick. As it is, the one piece illustrated must have been cut from a shell of unusual size. Locus : Bl. 12, ho. V, rm. 97. Level : –17·1 ft.

No. 29 (DK 8690). Pottery ; no slip. 3·28 ins. long. Roughly made model of a bull with a garland or collar round the neck and fastened in front. Locus : First St. (6). Level : –20·5 ft.

No. 30 (DK 9383). Pottery ; cream slip. 5·25 ins. long. Hollow model of a bull of very careful workmanship. Fashioned entirely by hand and with great stress laid on the various details which were cut with a graver before baking. Round the neck there is a twisted double band, which may represent a garland of flowers or, more likely, a plaited rope. The horns and ears are unfortunately missing. The eyes are small round pellets inserted in cuts made in the clay before baking. A small hole beneath is probably only a vent for the escape of air during baking. Locus : Bl. 7, ho. VIII, rm. 16. Level : –24·1 ft.

No. 31 (DK 7983). Pottery; no slip. 1·85 ins. high. The rough modelling of this bull is in marked contrast with the careful workmanship of No. 30, and it may have been made by a child. It stands on a rectangular base which, though flat, looks as if it had once been fixed on a support of some kind. A base such as this is rarely found. Locus: First St. (12). Level: −17 ft.

No. 32 (DK 9699). Pottery; no slip. 2·2 ins. high. Hollow pottery mask of a bull, made in a mould. Two small holes on each side of the head to fasten it to something. This is the first animal mask that has been found, though we are well acquainted with masks of the human face surmounted by horns. Locus: Bl. 1 (Palace), S. E. Wing (I), rm. 13. Level: −28·4 ft.

No. 33 (DK 8848). Pottery; no slip. 2·48 ins. high. Head of a bull, from which the body which was hollow is missing. First carefully modelled, then carved with remarkable skill despite the roughness of the work. Locus: Low Lane, bet. Bls. 6 and 7. Level: −19·2 ft.

Plate LXXX.—No. 1 (DK 8501). Faience. 2·13 ins. high. Monkey holding a young one on its knee. This roughly modelled group is made of a porous white paste which was doubtless intended to be glazed. The paste is fissured all over, though neither by corrosion nor by weathering; so much so, indeed, that it could hardly have been glazed without being first coated with some filling to conceal the cracks, unless an opaque glaze was used. The group was entirely modelled by hand and a certain amount of trimming done with a knife; for instance, the fingers and toes of both the mother and her young were carefully indicated by incised lines as was also the hair on the mother animal's head. The young monkey is looking over the left shoulder of its parent, and the mouths of both are open as if in alarm. The modelling is crudely done, but, as I have suggested above, this little group may be unfinished. There is, however, no difficulty in recognising the species of animal—obviously the common brown monkey of India, which has a comparatively short tail like that of the mother animal.[1] The flat base of this model gives it a good stance. Locus: First St. (5). Level: −21·5 ft.

No. 2 (DK 7035). Pottery, with a red slip. 1·32 ins. high. Carefully made figure of a monkey squatting with hands on knees. Two vertical holes, each 0·08 in. in diameter and 0·42 in. deep, in the top of the head could not have been intended to take separately-made ears as they are too high up. Another hole of about the same diameter, close behind the head, pierces the figure from top to bottom, and may have been intended, if this figure is a toy, to thread it on a string. There are deep cavities for the eyes, in which perhaps some other material was inlaid, and the mouth is shown as open. The body is very corpulent, but otherwise the proportions are fairly correct. Locus: Long Lane, bet. Bls. 10 (III) and 12. Level: −17·4 ft.

No. 3 (DK 5578). Porous white paste. 1·72 ins. high. Roughly modelled figure of monkey, squatting with hands on knees. The paste of which it is made appears to be powdered steatite, and as no trace of glaze remains, we must conclude that this model was never finished. Locus: Bl. 10, ho. I, rm. 5. Level: −12·6 ft.

[1] It will be noticed that the young one has no tail; it was probably intended to add one later.

No. 4 (DK 8442). Pottery, with a cream slip. 2·41 ins. long. Antelope with straight twisted horns, of which only part of one remains. The wrinkles on the back of the neck were indicated by lines incised with a pointed instrument. Locus : First St. (11). Level : –20 ft.

No. 5 (DK 6593). Bronze. 0·68 in. high. Model antelope (or possibly ibex), minute in size. May have been worn as an amulet, but the hole for suspension, if there was one, has been filled up owing to corrosion. Locus : Fore Lane, bet. Bls. 1 (III) and 7. Level : –14·3 ft.

No. 6 (DK 6528). Pottery ; no slip. 3 ins. long. Model turtle, with the carapace naturalistically represented as projecting slightly over the body at head and tail. Locus : Alley west of Bl. 1. Level : –16·8 ft.

No. 7 (DK 3907). Pottery ; no slip. 4·15 ins. long. Figure of buffalo in characteristic attitude, with nose well up scenting the breeze. Horns missing. The buffalo was rarely modelled in clay ; and in any case, the more roughly made pottery models are not easily distinguishable from those of bulls. Locus : Alley, bet. Bls. 2 (II) and 3. Level : –15·2 ft.

No. 8 (DK 9279). Pottery ; no slip. 2·75 ins. long. Roughly modelled ram, with no details except eyes represented by round pellets. Locus : Bl. 2, ho. I, rm. 8. Level : –19·9 ft.

No. 9 (DK 8818). Pottery ; red wash. 2·5 ins. high. Badly made animal ; difficult to identify, but possibly a dog. The mouth is a mere cut, and the ears are short and rounded. This creature once stood on a rectangular plaque. Locus : First St. (1) (in a drain). Level : –23 ft.

No. 10 (DK 7254). Pottery, with a red slip. 2·91 ins. high. Animal with large rounded ears, now broken,[1] and a very definite beard. The mouth is indicated by a deep cut, and the eyes by slightly oval pellets of clay. Locus : Bl. 5, ho. I, rm. 2. Level : –18·4 ft.

No. 11 (DK 9425). Pottery ; red slip. 3·65 ins. long. Goat with beard. Horns missing. The mouth is indicated by a strip of clay with an incised line to separate the lips, a method of representation which has not been observed before in an animal model, though quite often in human figurines. In the pellet eyes the pupil is shown by an incised line. The Roman nose of the typical Indian goat is cleverly indicated. Pottery models of the goat are rarely found at Mohenjo-daro ; and possibly the animal was too common to be worth modelling. Locus : Fore Lane, bet. Bls. 1 and 10 (I). Level : –25·6 ft.

No. 12 (DK 8430). Pottery ; no slip. 1·18 ins. high. Model ram, with the curly fleece roughly indicated by curved lines. Locus : Bl. 7, ho. VII, rm. 20. Level : –19·7 ft.

No. 13 (DK 7332). Porous white paste. 2·09 ins. long. Ram in couchant attitude. Deep holes indicate the eyes, but there is very little added detail. No sign of glaze, and this model may never have been finished. Like the other models in faience, seems to have been made by hand and not in a mould. Locus : Bl. 3, ho. VI, rm. 47. Level : –19·3 ft.

No. 14 (DK 9591). Pottery ; no slip. 2·62 ins. long. Female kid, as shown by the short upturned tail and other details. The eyes are mere slits in the clay, in which the usual pellets could never have been inserted. There is a collar round

[1] These are definitely ears and not horns as they look to be in the photograph.

the neck. Though the legs are broken off, enough remains to show that they were joined together in pairs. Locus : Bl. 3, ho. VI, rm. 47. Level : −29·3 ft.

No. 15 (DK 5975). Pottery ; no slip. 2·48 ins. high. Dove with out-stretched wings standing on a plinth with a hollow base. Wings badly broken. Locus : Fore Lane, bet. Bls. I (IV) and 10. Level : −15·9 ft.

No. 16 (DK 9560). Pottery ; no slip. 1·8 ins. long. Head of a bird ; with its broad flat bill, either a duck or a spoonbill. There is a small vertical hole through the neck. Locus : Bl. 7, ho. I, rm. 15. Level : −26·2 ft.

No. 17 (DK 9263). Pottery, no slip. 2·1 ins. long. Model bird, perhaps a dove or pigeon, with the crossed wings represented by strips of clay, a very unusual technique. Legs and possibly a base missing. Locus : Bl. 2, ho. I, rm. 8. Level : −18·4 ft.

No. 18 (DK 5841). Pottery ; no slip. 1·5 ins. long. The fan-shaped tail suggests a dove. Probably once stood on a base like that of No. 15. Locus : Bl. 9A, ho. V, rm. 66. Level : −14·5 ft.

No. 19 (DK 9683). Pottery ; no slip. 2·7 ins. long. Hollow pottery model of a quadruped which cannot at present be satisfactorily identified. It has a round, almost spherical body and may possibly be a tortoise, as these animals walk on the tips of their toes raising the body some distance from the ground. Though the head is unfortunately incomplete, apparently little of it is missing. Locus : Fore Lane, bet. Bls. 1 and 10 (I). Level : −28·5 ft.

No. 20 (DK 8349). Pottery, with a red slip. 2·6 ins. high. An amusing model fowl (*Gallus domesticus*) with a food dish in front of it. Though the head is missing, the tail is certainly that of a domestic fowl. The food-vessel is not unlike a type of vessel that is very common at Mohenjo-daro (Pl. LV, figs. 1-10). Both bird and dish are fixed on a thin rectangular stand. This model is especially valuable, in that it furnishes a proof that the fowl was domesticated at Mohenjo-daro ; which after all is not surprising, since the domestic fowl, now bred all over the world, is supposed to have originated in India. Locus : Bl. 7. ho. III, rm. 40. Level : −17 ft.

No. 21 (DK 9105). Pottery, with a red wash. 1·3 ins. high. Bird with long broad tail but no wings, standing on a plinth with a flared hollow base. Locus : Bl. 1, ho. II, rm. 33. Level : −20·3 ft.

No. 22 (DK 7795). Pottery, with a cream slip. 3·79 ins. long. Though the head of this bird is missing, the graceful curve of the neck and body, and the long broad tail and stout legs identify it with the peacock. It is roughly modelled, especially the legs which are solid and almost square. Locus : Bl. 7, ho. I, rm. 3. Level : −14·9 ft.

No. 23 (DK 8196). Pottery ; no slip. 3·61 ins. long. Bird with out-stretched wings, possibly a dove. It was originally fixed on a stand, like Nos. 15 and 25 ; and a deep small hole in the middle of the fracture where the stand is missing implies that it had been pinned on to give it additional strength. Locus : First St. (22). Level : −18·4 ft.

No. 24 (DK 8199). Cream-coloured paste. Height of head only, 0·75 in. Model head of a crested bird. No trace of glaze now remains, but brown stains here and there on the paste suggest that the glaze was originally green. Locus : Bl. 7, ho. IV, rm. 49. Level : −15·1 ft.

No. 25 (DK 6274). Pottery, with a red slip. 2·18 ins. high. Dove with outstretched wings on a pedestal with a flared, concave base. Locus : Bl. 6, ho. II, rm. 6. Level : –18·8 ft.

No. 26 (DK 8267). Drab-coloured pottery. 1·62 ins. high. Model of a singing bird ; carefully made, but now somewhat discoloured by smoke. It seems likely in view of this model that song-birds were kept in captivity, and it is unfortunate that we have only the head and part of the body, so that it is impossible to identify it. Locus : Bl. 7, ho. III, rm. 46. Level : –16·5 ft.

No. 27 (DK 5691). Pottery, with a white slip over a purple paint.[1] The upper part is decorated with stripes of green, red and black paint, and on each of the red stripes is a row of white spots. 3·75 ins. long. The colours are quite well preserved, except the green which is friable ; and they were applied after baking. This model was carefully made and finished. The fan-shaped tail and the poise of the neck suggest that it represents a dove. A large hole, 0·3 in. in diameter and 1·25 ins. deep, runs obliquely downwards in the breast. Two holes, each 0·25 in. in diameter and 0·7 in. deep, served to take the wooden legs. It is quite possible that the hole in the breast took a shaft and that the bird was mounted on wheels ; if so, it would fall into the category of bird chariots, already discussed by Mr. Majumdar in the first book on Mohenjo-daro (see also Pl. LXXXI, 13, 17, for two more examples). Locus : Bl. 12, ho. I, rm. 11. Level : –13·2 ft.

Plate LXXXI.—Nos. 1 and 1a (DK 5796). Pottery ; no slip. 3·9 ins. long. Head and part of body of an animal that is well-nigh impossible to identify. The inset round pellets for eyes and the wrinkles above them are similar to those frequently seen in the better modelled bulls, *e.g.*, Pl. LXXIX, 24. But that this grotesque head is not that of a bull is evident from the shape of the mouth and the beard below it.[2] A second fringe of hair hangs immediately below the mouth, unless we are to suppose that it was intended to represent a row of teeth. This head has a certain likeness to the bearded head on an animal's body seen in Pl. LXXVIII, 7. Locus : Bl. 1 (Palace), court III, rm. 1. Level : –14·4 ft.

Nos. 2 and 2a (DK 9776). Pottery ; no slip. 3·63 ins. long. From the treatment of the eyes and the broad slightly open mouth, which is apparently showing the teeth, the head of this curious figure is certainly animal rather than human. The eyes are, in fact, represented by inserted pellets of clay, a technique which has hitherto only been found in animal figures ; and a further elaboration is the insetting of incised eyelids also. A short beard is indicated beneath the mouth. The body is long and thin, and in its small size out of all proportion to the head ; and two fractures indicate where four legs have been broken off. This figure possibly represents a tiger. Locus : Fore Lane, bet. Bls. 1 and 10 (I). Level : –31·7 ft.

No. 3 (DK 8683). Pottery ; no slip. Probably a bird's head on a neck which terminates below in a rounded base. Locus : Bl. 4, rm. 79. Level : –21·3 ft.

No. 4 (DK 6006). Pottery ; no slip. Bird's head on a long neck which is flanged about half-way down. The projection below the flange has a hole pierced through it to take a string. Round pellet eyes. Locus : Bl. 10, ho. I, rm. 6. Level : –29·7 ft.

[1] An iron oxide possibly formed the basis of the colour.

[2] This statement should be modified, since figures of the Sumerian bull are bearded.

Nos. 3 and 4 appear to be jar-stoppers, though we have not found the vessels to which they belong.[1] No. 11 also falls into this category. Both it and No. 4 have a hole in the point below the flange and they were evidently tied to the vessel to which they belonged. If the latter were water-vessels and constantly carried about, it would have been necessary to take some means to prevent the loss of their stoppers. Jar-stoppers of this type are quite commonly found in the earlier levels, but none have yet been unearthed in the upper strata.

No. 5 (DK 8891). Pottery ; no slip. 2·3 ins. high. A figure with a bird-like head that in its curious shape resembles No. 9. On either side are short raised arms or wings. Two perforated projections behind, which have been broken off, suggest that this object was swung on a rod. A small hole through the neck probably served to take a cord. The lower part of the body is missing. Locus : Bl. 7, ho. IV, rm. 72. Level : –18·5 ft.

No. 6 (DK 6854). Pottery, with a red slip. 2·4 ins. high. Two very similar cages are illustrated in the first book on Mohenjo-daro,[2] in which it was suggested that they were for insects. But from this new find it is evident that they were really models of bird-cages, for a bird is seen here coming out of its cage. The modeller, perhaps a child, had some difficulty in fashioning the legs of the bird and they look much more like flippers. The head, however, is clearly that of a bird. This model cage being roughly fashioned by hand is somewhat irregular in shape. In certain respects this little model recalls the cult object before the so-called " unicorn " on the seals, which I have suggested may be a cage.[3] Locus : Bl. 1 (Palace), court III, rm. 1. Level : –17 ft.

No. 7 (DK 9307). Pottery ; no slip. 1·9 ins. long. Probably the arm of a figure such as Nos. 8 and 14. Locus : Bl. 3, ho. II, rm. 34. Level : –17·7 ft.

No. 8 (DK 6716). Pottery ; red slip. 3·3 ins. high. A very similar animal to No. 14, but with a protruding abdomen and a large flat tail, whose tip is missing. Similar figures to these have been found in the Later levels (Pl. LXXIV, 13). Locus : Bl. 9, ho. VII, rm. 17. Level : –14·4 ft.

No. 9 (DK 9100). Pottery, with a cream slip. 2·72 ins. high. A similar figure to No. 5, except that the head faces the reverse way. It also has two wing-like projections, pierced to take rod or cord, and a hole through the neck. A collar, or strings of beads, round the neck is represented by roughly incised lines.[4] The lower part of this object is missing. Locus : Bl. 9A, ho. V, rm. 67. Level : –20·2 ft.

No. 10 (DK 9238). Pottery, with a cream slip. 2·7 ins. long. In this model, the body of an ox has two wings projecting forward from the shoulders, each of which has a hole pierced through it to take a rod upon which the animal's head was swung. A hole through the hump served as a guide to a string that was attached to the moveable head. Locus : Crooked Lane, east of Bl. 1 (I). Level : –18·6 ft.

No. 11 (DK 9717). Pottery, with a cream slip. Similar to No. 4 in the same plate. Locus : First St. (6). Level : –21·2 ft.

[1] These vessels may have been gourds or even made of leather.

[2] *Mohenjo-daro and the Indus Civilization*, pl. LXXXIV, 1, 2.

[3] *Ibid*, p. 383.

[4] Certain wooden acrobatic figures of monkeys made in the Simla hills to-day are also represented as wearing necklaces.

No. 12 (DK 8246). Pottery; no slip. 1·5 ins. high. This little object appears to be a gamesman, as it has a flat base on which to stand. The eyes and nose are the only features indicated. Locus: Bl. 7, ho. 3, rm. 48. Level: −14·8 ft.

No. 13 (DK 8594). Pottery; no slip. 3·9 ins. long. Roughly made, hollow model of a bird with expanded tail and round pellet eyes. Two holes, each 0·17 in. in diameter, took an axle on which a pair of pottery wheels were fixed; the toy was drawn along by a cord passed through a small perforation in the base of the head. Locus: Bl. 7, ho. IV, rm. 72. Level: −16·3 ft.

No. 14 (DK 9260). Pottery; no slip. 3·5 ins. high. Figure with long flat ears and well developed muzzle; once had moveable arms on a support passed through a hole, 0·19 in. in diameter, through the body. This figure is decorated with white bands on the ears and eyes, and a collar of four strings of beads is represented in white paint round the neck.[1] This collar is, I think, fairly conclusive evidence that figures such as this represented human bodies with animal heads, but what animal it is difficult to say. The monkey is, of course, ruled out by the large upright ears. Locus: Bl. 2, ho. 1, rm. 8. Level: −18·6 ft.

No. 15 (DK 9499). Pottery; no slip. 1·63 ins. high. Gamesman with a hollow body which stands well though it is partly open below. Incised lines at the back of the head represent the hair, otherwise only the arms, eyes and nose are represented. Locus: Fore Lane, bet. Bls. I and 10 (I). Level: −27 ft.

No. 16 (DK 8871). Pottery, formerly coated with a red slip. 1·5 ins. high. This little figure has a flat base, in the middle of which is a small hole, 0·11 in. in diameter and 0·75 in. deep. One very rudimentary arm is represented, but its fellow is missing. That the hair is parted down the centre is indicated by means of a dent, and three more at right angles to the parting serve to indicate the separate locks of hair. This little truncated figure must, I think, be a gamesman. The hole in the base perhaps assisted in its modelling; or there were pegs upon the board on which it was used. Locus: Bl. 5, ho. II, rm. 7. Level: −18·6 ft.

No. 17 (DK 8205). Pottery, with a cream slip. 5·2 ins. long. Similar figure to No. 13, but not so flat and better made. The holes for the axle are 0·29 in. in diameter, and a smaller hole for a cord passes through the neck. Locus: Bl. 9, ho. VIII, rm. 18. Level: −14·6 ft.

No. 18 (DK 8226). Pottery; no slip. 2·33 ins. long. This may possibly represent a monkey, though the ears are over large. It seems to be perched on a board mounted on a pole. If this be so, it is possible that pet animals, whether monkeys or other creatures, were fastened to stands on which they lived with sufficient length of chain to allow of their visiting the ground. Locus: Bl. 9, ho. II, rm. 11. Level: −13·1 ft.

No. 19 (DK 8090). Pottery, with traces of a red slip. 3·26 ins. high. Very roughly modelled monkey (?), climbing a pole or tree which was formerly affixed upon a stand. Locus: Bl. 7, ho. III, rm. 44. Level: −12·3 ft.

No. 35 in Pl. CVIII (DK 6520) (see also Pl. CX, 16) is of alabaster, and measures 4·6 ins. across the chord by 1·5 ins. in diameter at its larger end. The point of this horn is missing and in the middle of the square cut, broad end there is a hole

[1] Possibly there were other colours which were not so fast as the white.

0·5 in. in diameter and 1·75 ins. deep. There can be no doubt, I think, that this object was one of the horns of a large statue of a bull; horns were frequently fitted on models of bulls of even small size (Pls. LXXI, 25; LXXIV, 11, 12; LXXVIII, 6). Locus: Bl. 7, ho. VIII, rm. 20, Level: −13·4 ft.

No. 10 in Pl. CXI (DK 9008). Faience; yellow paste coated with a blue glaze. Couchant ram. The workmanship is rough and certain features are merely represented by incised lines. A minute hole, 0·05 in. in diameter, passes longitudinally through this little figure. Locus: Bl. 1 (Palace), court I, 21. Level: −19·3 ft.

Plate CXII.—No. 10 (DK, DG 1). Pottery, with a cream slip. 2·73 ins. long. A humpless bull with round, inlaid pellets to represent the eyes. Horns and three of the legs missing. Wrinkles round neck and back incised with a sharp pointed instrument. Apparently solid, and somewhat roughly made. Traces of fine mica and lime in the clay, the lime in particles of appreciable size. Locus: Bl. 7 (deep digging). Level: −36·6 ft.

No. 11 (DK, DG 84). Pottery, with a cream slip. 3·15 ins. long. Humped bull with round, inlaid pellets for eyes. Horns missing. Fore- and hind-legs joined in pairs; slightly damaged. Wrinkles on hump and lower part of head incised with a pointed instrument. Fine red clay tempered with mica and lime. Solid and not particularly carefully made. Locus: Bl. 7 (deep digging). Level: −42·1 ft.

CHAPTER X.

FAIENCE, STONE AND IVORY VESSELS.

The further exploration of the lower strata of the site since 1927 has shown stone vessels to be no more commonly used during the earlier than in the later occupations, even if allowance be made for the larger area of the latter that has been excavated. Not even the little jars that were obviously intended for toilet use are found in any considerable numbers, though possibly these were so highly valued that they were taken away when the city was abandoned.

We ought perhaps not to expect stone to be used for such ordinary purposes as dishes or platters in so advanced a civilization as that of Mohenjo-daro. Besides being expensive to make, they would have been very liable to break on the brick floors of the houses ; pottery utensils would have been more easily and cheaply replaced. Most of the stone vessels that we have found are made of very soft white alabaster and could only have held dry substances and the thicker oils ; they would certainly have been entirely useless for cooking purposes.

Very much the same conditions pertained at the same time in Sumer. In the "A" cemetery at Kish, for instance, stone vessels were comparatively rare, though more numerous than at Mohenjo-daro. If, however, inhumation was generally practised by the Indus Valley people and we are fortunate enough to find one of their cemeteries, it may turn out that stone vessels were more common in the Indus valley of those times than we now suppose, and that they were included in the equipment buried with the dead.

The stone toilet jars fall into a somewhat different category. They were doubtless appreciated for their beauty and were in all probability kept in toilet boxes, though no boxes have survived and it is likely that they were made of some perishable material, such as wood or basket-work. Though the basal portions of most are incomplete, the original shapes of several of them are more or less evident ; for instance, Nos. 12 and 13 in Pl. CXLIII can reasonably be assumed to have had a base similar to that of the intact bronze toilet jar, No. 5 in Pl. CXXXII.

It is fair, I think, to assume that most of these tall stone jars were made on a lathe, though owing to their corroded surfaces it is difficult to prove it ; in shape they are so remarkably regular that it seems the most likely mode of manufacture. I have no doubt myself that the lathe was a very early invention and that it was worked with a bow and cord, as in many parts of India and the Near East at the present day.

The interior of each dish was probably hollowed out by means of a specially shaped borer, of which an example found in a previous season has already been published.[1] The exterior was then probably first roughly shaped and afterwards turned on a lathe, or the dish was laid upside down on a revolving horizontal wheel for the final trimming.[2] No. 2 in Pl. CXLIII must certainly, I think, have been made by the latter means ; its ring base quite precludes the possibility of the dish having been shaped by revolving it in a mould made of a harder, abrasive rock.

[1] Marshall, *Mohenjo-daro and the Indus Civilization*, pl. CXXX, 35.

[2] A wheel similar to the potter's wheel was possibly used ; the already hollowed-out block of stone could easily have been centred on it.

It would be an easier matter, it should be noted, to conform the shape of the outside of the dish to that of the inside than the other way about, for the reason that the method of boring the inside would be under less control than trimming the outside on a revolving horizontal wheel.

Faience Vessels (*Pls. LVI, 24 ; CV, 34, 35 ; CVI, 10, 25, 28 ; CVII, 2, 3 ; CXXXVII, 14 ; CXLI, 5–8 ; CXLII, 46, 47, 51 ; CXLIII, 1*).

Pl. LVI.—No. 24 (DK 3363) (see also Pl. CXLI, 7). Hard vitreous paste ; turquoise blue. A miniature vessel, 1·08 ins. high and 0·48 in. in diameter at mouth. Base very narrow. Locus : Bl. 7, ho. III, rm. 44. Level : – 5·5 ft.

Plate CV.—No. 34 (DK 11450). Faience ; faded blue glaze. Now 1·2 ins. high by 1·52 ins. in diameter. Upper part of a toilet jar ornamented on the top and sides with lines of black manganese paint. The narrow mouth is slightly recessed within the projecting spout. Two minute holes pierced vertically through the edge of the flange-like top. Locus : Bl. 9, ho. X, rm. 88. Level : – 5·6 ft.

No. 35 (DK 3380). Faience ; light blue glaze. Now 1·34 ins. high by 1·55 ins. in diameter. Upper part of a toilet jar with a short projecting spout set in a wide rim which is perforated for suspension in two places as in No. 34 above. On the narrow neck traces remain of a design of circles and lines in black paint. Locus : Bl. 7, ho. III, rm. 40. Level : – 3·2 ft.

The above two fragments are very unusual in that they are ornamented with paint. Faience, when decorated at all, was usually inlaid with bands of coloured paste, a mode of treatment that was much more complex in technique. The ornamentation of these faience vessels with paint brings them into line with similar jars of ancient Egypt, Crete and Sumer.

Plate CVI.—No. 10 (DK 12601). Two views of the upper portion or pan of a miniature offering-stand. Vitreous paste ; turquoise blue. 1·7 ins. in diameter ; 0·47 in. high. Very carefully made in a mould and unusually well finished. Small hole in base of pan for attachment of the latter to a stem and base. When complete this little stand must have resembled the pottery one in Pl. LII, 29. Locus : Bl. 29, ho. I, rm. 1. Level : –10·8 ft.

No. 25 (DK 10022). Grey porous paste, with a light yellow surface which has lost its glaze. Portion of side and end of a small rectangular box. 1·27 ins. deep on the outside and 1·1 ins. on the inside. Roughly decorated with shallow, horizontal grooves. This photograph has, unfortunately, been wrongly placed ; the left hand side is really the bottom of the box. Another part of this same box is seen in No. 28 in the same plate. Locus : West Street, bet. Bls. 15 (V) and 18. Level : –3 ft.

No. 28 (DK 10151). Part of a side of the same box, with remains of one end and the base. Now 2·6 ins. long by 1·3 ins. wide. Locus : West Street, bet. Bls. 17 (IV) and 19. Level : –2·2 ft.

Though these are obviously two pieces of the same box, they do not fit together.[1] It is estimated that when complete this box was 2·76 ins. long outside. It was 1·27 ins. high, as above mentioned, but its width could not be ascertained. The thickness of the sides averages 0·24 in. and there are no breaks to indicate that

[1] The rim is seen on the right hand side of both photographs.

it was divided up into compartments. The paste of which this box was made seems to have been so soft as to require a temporary backing before being glazed and fired; the impression of some woven material is clearly discernible on the inside. It may have been that the box was shaped about a rectangular core covered with cloth whose nature allowed the paste to adhere firmly to it. The cloth would have burned away in the kiln, allowing the finished box to be removed quite easily from the core; or possibly this core was itself made of wood to be combustible. If, however, it was some infusible material such as pottery, it could have been used over and over again. In each of the four corners of this box a minute horizontal hole was pierced beneath the rim for suspension or to tie on a cover.[1]

Plate CVII.—No. 2 (DK 5060) (see also Pl. CXLI, 8). Yellow paste; no remains of glaze. 0·43 in. high by 0·9 in. in diameter. This object whose sides are delicately grooved is, I think, part of a composite vase made in several sections. Locus: Bl. 1, ho. IV, rm. 27. Level: – 8·2 ft.

No. 3 (DK 4804) (see also Pl. CXLI, 6). White paste; no signs of glaze. 1·09 ins. high by 0·62 in. in diameter. Ornamented with horizontal grooves. The internal diameter of this little jar, which in both illustrations is unfortunately represented upside down, is only 0·3 in., and it is likely that it was used to contain some rare and expensive substance. That it was once affixed to a stand is proved by the presence of a small vertical hole in its base.[2] Locus: Western end of Fore Lane, (60). Level: – 8·1 ft.

Pl. CXXXVII.—No. 14 (DK 3377). Vitreous paste; turquoise blue. 0·78 in. high, with the interior which is 0·55 in. deep tapered from 0·6 in. in diameter at the mouth to 0·18 in. at the base. Locus: Bl. 7, ho. III, rm. 40. Level: – 3·4 ft.

Plate CXLI.—No. 5 (DK 3529). Bluish-green vitreous paste. Part of a little jar decorated with finely scored lines round its widest part. Present height of fragment, 1·6 ins. Locus: Low Lane, bet. Bls. 6 and 7. Level: – 9·1 ft.

Nos. 6, 7 and 8 in this plate have already been described above.

Plate CXLII.—No. 46 (DK 9032) (see also Pl. CXLIII, 1). Faience; no trace of colour left. 1·22 ins. high. Very carefully made. In shape resembles certain larger vessels of pottery and metal which are thought to have been made for ceremonial use (Pls. LVI, 25–7; CXIV, 12, etc.). Two minute holes through the rim for suspension. Interior stained dark brown, perhaps by some rare cosmetic. Locus: Bl. 1 (Palace), court 1 (82). Level: –19·5 ft.

No. 47 (DK 6968). White paste; no glaze. 0·66 in. high; diameter of mouth 0·5 in. Interior 0·12 in. in diameter and 0·4 in. deep. Locus: Bl. 3, ho. III, rm. 26. Level: –15·1 ft.

It will be seen that all these faience vessels are very small. In fact, most of them would have held hardly anything at all, and unless they were votive offerings we must infer that they were intended for expensive cosmetic or perfumes, such, for instance, as attar of roses. They were both too well made and too fragile to have been children's playthings. There is now quite a large and varied collection of these small faience vessels in the museum at Mohenjo-daro, and it is of interest to

[1] In ancient Egypt, pottery boxes of Predynastic date were similarly suspended; Capart, *Primitive Art in Egypt*, p. 132, fig. 105.

[2] This object was at first thought to be a pin-head, which accounts for its being illustrated upside down.

note that they are unknown in any other ancient civilization, save Crete.[1] Though miniature jars made of pottery are well-known in Sumer and other ancient countries, they are not so small as those of the Indus valley.

A remarkable object is the small faience model of an offering-stand illustrated in Pl. CVI, 10. It was made in two or perhaps three pieces which were pegged together. Possibly this little table received the oil poured from a miniature jar.

Some difficulty was evidently met with in the manufacture of these little jars which necessitated their being made in more than one piece, *e.g.*, Pls. CVI, 10 ; CXLI, 8, and other vessels found prior to 1927.[2]

They were probably made of faience and vitreous paste in order to prevent their contents soaking into the substance of the jar ; and there is no doubt that they were all very carefully glazed, especially on the inside, though many have lost their coating through the action of damp.

Miscellaneous Stone Vessels and Jar-Covers (*Pls. LXI, 49 ; LXII, 7 ; CV, 28, 52 ; CXVI, 2; CXVIII, 8; CXXV, 25; CXLII, 41–5, 50, 52; CXLIII, 2–14*).

Pl. LXI.—No. 49 (DK 8476). Soft white alabaster. 1·81 ins. high. Unfinished. Its lower portion clearly shows that at one time this cup was cemented to a stem or base. Locus : Bl. 7, ho. I, rm. 19. Level : –20·5 ft.

Pl. LXII.—No. 7 (DK 9333). Jar-cover. Soft white alabaster. 2·41 ins. in diameter. Carefully made, and in shape like numerous jar-covers made of pottery. Locus : Bl. 3, ho. II, rm. 25. Level : –18·9 ft.

Plate CV.—No. 28 (DK 10882) (see also Pl. CXXV, 25). Jar-lid. Soft white alabaster. 1·95 ins. in diameter. Badly weathered and fissured by damp. Locus : Bl. 8A, rm. 44. Level : –6·1 ft.

No. 52 (DK 3310). Top of grey limestone vessel, that was made in more than one piece. 1·8 ins. in diameter. Locus : Bl. 9, ho. I, rm. 27. Level : –1·7 ft.

Pl. CXVI.—No. 2 (DK 11337 (*e*)) (see also Pl. CXVIII, 8). Cup of jade-green, crystalline stone. 4·2 ins. high ; 2·7 ins. in diameter at base and 2·82 ins. at rim. Depth inside, 3·7 ins. Slightly marked inside by a tubular drill. The finish of the outside is good, but the cup is a little out of shape. This object was found with a hoard of metal vessels and implements buried beneath a floor in Bl. 15, ho. VI, rm. 28, at the level – 7·1 ft. Its appearance *in situ* is seen in Pl. X, fig. (h), where it is at the back of the group.

As I was unable to identify the stone of which this cup is made, I submitted it to Dr. Fermor, the Director of the Geological Survey of India, who has kindly reported on it as follows :—

> " The vase forwarded has been examined and found to be made of fuchsite. There are no known occurrences of pure fuchsite rock in India, but there are occurrences of fuchsite-quartzite in Mysore. It is possible that small masses of pure fuchsite similar to that of which the vase is made may be associated with these quartzites."

[1] *Cf.* a miniature jar of faience and gold of M. M. II (b) date from the Loom Weight Area at Knossos ; Evans, *Palace of Minos*, I, p. 252, fig. 189 a. These small faience jars seem, however, to have been as rare in Crete as they are common at Mohenjo-daro, though in pottery they are quite frequently found. Sir Arthur Evans is inclined to regard the miniature pottery jars as votive offerings This may also be the case at Mohenjo-daro : one can picture worshippers bringing rare oils in these little jars to anoint the figure of a deity.

[2] *Mohenjo-daro and the Indus Civilization*, p. 366.

The nearest part of Mysore State to Mohenjo-daro is over 1,000 miles as the crow flies, and more than 1,600 miles by sea or along the coast. It would therefore be reasonable to assume for the present that the people of Mohenjo-daro had nearer sources of fuchsite rock than Mysore; it may have been in Afghānistān, of the minerals of which we know but little, or Balūchistān, or even further west. There is, however, no real objection to Mysore being considered a possible source of the material of this cup; the Indus Valley people doubtless traded with Southern India, as they did with Sumer and Elam.[1] [2]

Plate CXLII.—No. 41 (DK 7977) (see also Pl. CXLIII, 7). Greyish alabaster of a harder variety than usual. Diminutive jar, cylindrical in shape with a slightly flared mouth. 0·82 in. high by 0·83 in. in diameter. Carefully made. No stains are now visible in its interior, but the unusual colour and comparative hardness of the alabaster suggest that it may possibly have absorbed some of its liquid contents. Locus: Low Lane, bet. Bls. 6 and 7. Level: −15·5 ft.

No. 42 (DK 8971) (see also Pl. CXLIII, 8). Steatite or steatite paste. 1 in. high; interior 0·12 in. in diameter and 0·69 in. deep. This little vessel is not complete; it had once been fitted on a base of some kind. Locus: Bl. 7, ho. III, rm. 42. Level: −21·1 ft.

No. 43 (DK 6004) (see also Pl. CXLIII, 12). Soft white alabaster. This jar was made in three pieces; the rim and shoulder, the body, whose interior is 0·5 in. in diameter and 1·45 ins. deep, and a base, now missing. The height of the two remaining pieces fitted together is 3·36 ins. The upper part was made in two pieces to allow of a reasonable-sized cavity being drilled in the body; this would not have been possible if the vase had been made in one piece, for the mouth is only 0·28 in. in diameter. Locus: Bl. 7, ho. VIII, rm. 28. Level: −14·8 ft.

No. 44 (DK 7794) (see also Pl. CXLIII, 9). Soft white alabaster. 3·42 ins. high. The interior was only roughly ground out, and the cup is badly corroded by damp. Locus: Bl. 3, ho. VI, rm. 40. Level: −18·4 ft.

No. 45 (DK 9605). Greenish-grey steatite. Slightly curved fragment of a vessel which probably had two compartments, like No. 43a from Susa. 1·98 × 1·5 × 0·29 ins. Has an intricate pattern resembling matwork carved on its outer surface. From its curvature it is estimated that this piece once formed part of a vessel about 2·85 ins. in diameter. Locus: Bl. 7 (I), Deep digging, rm. 9. Level: −28·1 ft.

This fragment, small as it is, is of especial interest because the design upon it is exactly the same as that upon one part of the complete double vessel found at Susa (Pl. CXLII, 43*a*),[3] which is dated to c. 2,800 B. C.[4] Mr. Henry Field now reports that similar fragments with the same pattern have lately been unearthed at Kish, where also they are dated by the stratum in which they were found to c. 2,800 B. C.[5] The fragment from Mohenjo-daro, which it should be noted was

[1] We have no means of knowing whether the cup itself or the rock from which it was cut was imported into Sindh.

[2] Fuchsite (chromium mica) is a very rare mineral. It is found in the Alps and the Urals, and also in Maryland, U. S. A. I have been unable to find any record of its occurrence in the countries nearer India, possibly for want of an exhaustive survey of those regions.

[3] I have to thank Dr. G. Contenau for permission to reproduce a photograph of this double vase which has already appeared in his book. *Manuel d'Archéologie Orientale*, p. 276, fig. 169.

[4] See my note in *Antiquity*, Sept., 1932, pp. 356-7.

[5] *Antiquity*, March, 1933, pp. 84, 85, pl. II.

found in a very early stratum, thus proves to be of great importance for the dating of the city.

No. 50 (DK 5948) (see also Pl. CXLIII, 5). Soft white alabaster. 0·83 in. high; 1·52 ins. in diameter. The upper part of a tall vessel which was probably very similar in shape to No. 12 in Pl. CXLIII, already described. The sides of this piece were carefully graduated to fit accurately on the lower part of the vessel which is now missing. The hole through it, which was the mouth of the jar, is only 0·18 in. in diameter. Locus: Bl. 12, ho. V, rm. 97. Level: –17·6 ft.

No. 52 (DK 6760) (see also Pl. CXLIII, 13). Soft white alabaster. 4·08 ins. high. The interior which is remarkably small for the size of the jar is only 0·39 in. in diameter by 2·4 ins. deep and tapers slightly to the bottom. The base of this little vessel is missing, but as there is no actual break the body must have been cemented to a second piece of stone. The black stains inside are probably due to kohl. Locus: Crooked Lane, bet. Bls. 1 (court III) and 2. Level: –17·5 ft.

Plate CXLIII.—No. 2 (DK 8029). Soft white alabaster. Part of a shallow dish with a ring base, whose diameter is estimated to have been 13·8 ins. The drawing is a reconstruction from the small fragment found.[1] Badly corroded. Locus: Bl. 7, ho. V, rm. 66. Level: –12·5 ft.

No. 2*a* (DK 9095). Soft white alabaster. Part of a shallow bowl whose diameter is estimated to have been 6·5 ins. Locus: Bl. 1, ho. VI, rm. 55. Level: –17·4 ft

No. 3 (DK 6431). Soft white alabaster. Part of a shallow bowl with a flat edge to the rim, which in shape is like certain bowls of copper and bronze (Pl. CXIV, 10).[2] Very corroded. Locus: Bl. 10, ho. I, rm. 5. Level: –16 ft.

No. 4 (DK 6432). Soft white alabaster. Small fragment of a shallow bowl. Found with No. 3. Badly corroded. Locus: Bl. 10, ho. I, rm. 5. Level: –16 ft.

No. 6 (DK 5193). Soft white alabaster. Jar-lid. 0·85 in. high. Lower edge bevelled to allow of its fitting tightly to the jar it once covered. Locus: Bl. 3, ho. V, rm. 22. Level: –14·9 ft.

No. 10 (DK 6355). Soft white alabaster. Feeding-cup. 2·2 ins. high. The hole in the spout is 0·21 in. in diameter at the tip, narrowing down to 0·1 in. at the inner end. Small flat base, 1·2 ins. in diameter. Several pottery examples of this type of feeding-cup have been found (Pls. LXI, 46, 50; LXVI, 1, 2); and this specimen is only the second of another material. Soft alabaster of this kind is, indeed, hardly a suitable material for a feeding-cup, as it is partly soluble in fluids, though less in milk than in water. I doubt whether stone feeding-cups would be so easily kept clean as those of pottery, despite their more hygienic appearance. Locus: Bl. 1, ho. V, rm. 46. Level: –18·3 ft.

No. 11 (DK 5810). Soft white alabaster. 1·56 ins. high. A copy in stone of a type of pottery vessel that also is rarely found at Mohenjo-daro (Pls. LIII, 28; LV, 23).[3] Locus: Bl. 10, ho. I, rm. 5. Level: –15·4 ft.

[1] Quite enough remained of this and the pieces described below to enable accurate reconstructions to be made from them.

[2] *Mohenjo-daro and the Indus Civilization*, pls. CXL, 4, 5; CXLII, 3.

[3] *Mohenjo-daro and the Indus Civilization*, pl. CI, 27.

No. 14 (DK 6237). Veined alabaster of a colour and hardness rarely found at Mohenjo-daro.[1] 3·5 ins. high ; 1·65 ins. in diameter. An unfinished jar, not yet hollowed out, whose upper edge is fractured, showing that some part is missing. Its shape is especially interesting in that it is new to us, either in pottery or any other material. Locus : Bl. 1, western court (24). Level : −16·6 ft.

With the exception of the hard stone cup illustrated in Pls. CXVI, 2 ; CXVIII, 8, all the stone vessels found, save two, were made of the softest kind of alabaster, so soft in fact that they all show the warping, fissuring and loss of substance caused by dampness of the soil. The source of this alabaster has not yet been ascertained, but Sir Edwin Pascoe, late Director of the Geological Survey of India, has informed me that there are ample supplies of this soft material comparatively close to Mohenjo-daro.[2] The two jars of harder material (Pls. CXLII, 41 ; CXLIII, 14) are made of stone which resembles the aragonite that was so commonly used in Egypt and Sumer. No. 41, in Pl. CXLIII obviously belonged to a small toilet set and in shape is not unlike certain Egyptian jars.

The making of some of the stone and faience jars in two or three pieces which were afterwards cemented together recalls a similar technique in ancient Egypt, whose object was to enable the cavity of the body to be made a considerable size but with a narrow mouth to prevent the drying up of the contents of the jar. In the majority of the faience and stone cosmetic jars of Mohenjo-daro, however, the body cavity is so little wider than the mouth of the jar that there was really little need for the top to be manufactured separately.

The interiors of these vessels were certainly cut with a tubular drill, a tool which we have noted before was extensively used at Mohenjo-daro. In Pl. CIV, 5, a core is seen still to remain in the cut made by a tubular drill ; and the same thing is to be observed in the dowel-hole of a large ring-stone made of limestone (Pl. CXLIV, 5). We have, in fact, found many of the cores left by the users of tubular drills ; of two very good examples (Pl. CXI, 71, 78), the first is 1·3 ins. long by some 1·22 ins. in diameter, and the second 1·75 ins. long by 1·32 ins. in diameter.[3] Both these cores, which are soft white alabaster, evidently come from jars of larger size than those we have found as yet. Either a metal tube or a hollow piece of reed or bamboo could have been used as a drill with fine sand or emery as the abrasive.

It is evident that most of the taller stone jars were made expressly for toilet use. That one at least contained a pigment is proved by the black stains in the interior (Pl. CXLII, 52) ; and it may be that all these jars were used for this purpose. Many of the kohl-pots of ancient Egypt had a wide flat rim so that any excess of kohl removed by the stick could easily be swept back into the pot. Nearly all the kohl-pots of Mohenjo-daro, however, have a spout-like mouth (Pls. LVI, 4 ; LX, 51 ; CXXXII, 5 ; CXLIII, 5, 12, 13), and it is possible that the eye-paint was poured out on a palette to be mixed with water rather than kept ready moist in the pot. If this were so, it would explain why so few of the jars are stained.

[1] Possibly aragonite.

[2] *Mohenjo-daro and the Indus Civilization*, p. 679.

[3] No. 71 (DK 4198) was found with two others in room 24 of ho. II, Bl. 2, at the level—12·7 ft. ; and No. 78 (DK 4267), with one other, in another part of the same room at 16·1 ft. below datum.

In contrast with the fairly complex make of these small cosmetic jars, the larger stone vessels—all of the fragments found are remains of dishes or shallow bowls—were very simple. No. 2 in Pl. CXLIII is a reconstruction from the first piece to be found of a stone dish with a ring base ; and Nos. 3 and 4 in the same plate are similar in shape to the metal dishes which are fairly common at Mohenjo-daro.

Though stone utensils were evidently rare, this can hardly be attributed to lack of raw material ; for with their widespread trading connections it should have been possible for the people of the Indus valley to obtain ample supplies. It seems reasonable to assume that bowls of wood and pottery were preferred to those of stone as being less liable to damage.

Shell (*Pls. CV, 36 ; CVII, 20*).

No jars made of shell have yet been found.[1] No. 36 in Pl. CV (DK 10621) (see also Pl. CVII, 20) is a shell lid that may have covered a jar of some other material. It is 1·23 ins. in diameter by 0·4 in. high, and it has a flat base and a rounded top with a projection by which it could be lifted. Locus : Bl. 8, ho. III, rm. 48. Level : −2·6 ft.

Ivory Vessels. (*Pls. CXLII, 48, 49 ; CXLIII, 15*).

Nos. 48 and 49 in Pl. CXLII (DK 9119) (see also Pl. CXLIII, 15) is either the basal portion or the top of a vase that may have been made of more than one material. It is 2·26 ins. in diameter and 1·04 ins. high, and there is a stepped vertical hole through it, part of which is 0·14 in. in diameter and the other part 0·35 in. If this object was the base of a jar, the hole would have served to peg it to the body ; if the upper portion, as its bevelled edge leads us to think,[2] the whole would have been the mouth of the jar, though one fails to see why in this case it had not the same diameter right through.

On this piece of ivory was a geometric design of circular motifs carefully carved in low relief, each circle being made by three petals on the broader surface of the object[3] and by four petals round the projecting piece. The latter device is commonly used on the pottery (Pls. LIV, 6 ; LXVII, 21, etc.).

Most of the petals still show traces of the light red pigment with which they were inlaid, and the contrast of this colour with the former creamy surface of the ivory must have been very fine. The polish of wear round its more prominent edge shows that the jar to which it belonged was some time in use. Locus : Bl. 1, ho. VI, rm. 55. Level : −18·4 ft.

[1] Vessels made in this material would necessarily have had to be minute or made of more than one piece.

[2] In this case the object should be represented the other way up.

[3] For another example of a three-petalled circle, see *Mohenjo-daro and the Indus Civilization*, pl. CLV, 51.

Chapter XI.

SEALS, SEAL IMPRESSIONS, AND COPPER TABLETS.

Amulets.

The numerous seals of the Late and Intermediate Periods that have been found in the DK Area, G Section, are very varied, as is seen from the reproductions of their impressions on plasticine in Plates LXXXII to LXXXIX, a part of Plate XC, and Plates XCIV to XCIX. They are arranged according to the levels at which they were found ; but a word of caution is necessary, for it does not follow that *all* the seals unearthed at lower levels are necessarily earlier in date than those found higher up. In removing bricks from earlier structures to build their own dwellings, it is quite likely that the people of Mohenjo-daro dropped seals and other objects, with the result that the low level at which an object lies may be no criterion as to its age. Broadly speaking, however, the levels should prove of use both to the student of epigraphy and to the philologist. The tables at the end of this chapter give the exact dimensions of the seals, the materials of which they are made, their levels and other matters of interest, leaving the text free of such detailed, but nevertheless very important matter.

It is hardly necessary to deal fully here with such technical questions as how the seals were made. They have been fully discussed in " Mohenjo-daro and the Indus Civilization," edited by Sir John Marshall, and it would be redundant to do so again. Suffice it to say that the more recently found seals are grouped under the same heads as in the above work, namely :—

Type.	Shape.	Nos. found.	No. in book.
(*a*) . . .	Cylinder seals	3	78, 376, 488.
(*b*) . . .	Square seals with perforated boss	558	....
(*c*) . . .	Square seals with no boss and frequently inscribed on both sides.	12	173, 189, 299, 328, 352, 377, 405, 492, 499, 587, 631, 636.
(*d*) . . .	Rectangular seals with no boss and frequently inscribed on both sides.	17	30, 73, 100, 133, 142, 220, 292, (327, 329), 339, 414, 505, 508, 526, 568, 643, 658, 683.
(*e*) . . .	Button seals with linear designs .	9	1, 17, 37, 172, 320, 550, 586, 619, Pl. CII, 1.
(*f*) . . .	Rectangular seals with perforated, convex back.	81	....
(*g*) . . .	Cube seals.	3	Pls. XC, 16, 19 ; CII, 3.
(*h*) . . .	Round seal with perforated boss	1	500.
(*i*) . . .	Rectangular seals with perforated boss.	2	510, 661.
(*j*) . . .	Round seal with no boss and inscribed on both sides.	1	604.

Broken seals about whose classification there is some doubt are eight in number, namely :—Nos. 6, 59, 151, 372, 394, 400, 497, 575. One sealing, No. 624, and three impressions from ivory sticks, Nos. 434, 437, 482, have inadvertently been included amongst the seals.

The square seal with a perforated boss on the back, *e.g.*, Pl. XC, 2, 5, was undoubtedly the most popular shape, a conclusion already reached in my survey of the seals found during the seasons previous to 1927-28.

In " Mohenjo-daro and the Indus Civilization " (1931), I apparently did not make it clear that when they bear both an inscription and an animal these objects were probably used as seals and amulets combined. It is the representation of the animal that would have had the amuletic value, and as far as was possible only the inscription was used for sealing purposes. The material on which the inscriptions were impressed was probably ordinary clay, which has not survived the damp and saltiness of the soil. Proof that anything made of unbaked clay did not long survive is afforded by the almost total absence of mud-plaster on the burnt-brick walls of Mohenjo-daro, though there is now no doubt that the walls were more often plastered than not. Wherever mud-plaster is found on a wall, it has invariably been preserved by accidental burning, save in the uppermost stratum of all where unburnt plaster has survived through being out of the reach of flood water—possibly also owing to the fact that the climate of Sindh was already becoming drier at the latter end of the city's history.

ANIMALS ON THE SEALS.

Urus Bull.

The favourite animal—no less than 388 of those which can be satisfactorily identified—was the beast shown with one horn only. For the reasons given below we will term it a " urus bull ". It is not yet certain that this animal was purposely represented as having a single horn ; in all probability, owing to the difficulty of drawing in perspective, one horn is supposed to be behind the other. This method of portraying horns is well known on archaic Sumerian seals, the same animal being indifferently portrayed with two horns or one. For instance, Nos. 234 and 359 distinctly show an animal, which is definitely of the type that is usually portrayed with one horn, possessed of two horns, though of a rather different shape.[1] [2]

Short-horned Bull.

Next in favour was the short-horned bull (Nos. 50, 90, 123, 129, 135, 186, 210, 216, 229, 238, 268, 275, 290, 298, 313, 334, 370, 378, 380, 385, 390, 399, 409, 410, 423, 443, 457, 462, 495, 500, 534, 581, 633, 655, 661, 675 ; Pl. LXXXII, 689, 701) portrayed with its head lowered as if about to charge, and with a manger or food-vessel below the head. On Nos. 135 and 655, however, and the unusually

[1] I do not think these animals are the ordinary ox. The head is much too small and pointed. The saddle-like markings which are so carefully drawn in every representation of the animal recall certain markings on the shoulders of the bulls of the inlaid panels of Al 'Ubaid. It is not impossible that the animals of these Al 'Ubaid panels are the prototype of the more developed and perhaps less lifelike representations at Mohenjo-daro ; Hall and Woolley, *Excavations at Ur*, vol. I, pl. XXXII.

[2] Friederichs in a most instructive article identifies this beast as either *Bos primigenius* or *Bos namadicus, Falc.* The shape of the horns as well as that of the body differentiates the two species on the seals ; *Der Alte Orient*, 32, pts. 3 and 4, 1933, pp. 6-14.

shaped seal No. 229, the manger or feeding-vessel is missing. No. 135 is also peculiar in that the bull is facing to the right, whereas practically all the animals on the seals, including the bulls, face to the left. Why the usual convention as to the animal's position should have been broken on this one seal, it is difficult to say.

The suggestion made in the first book tnat the so-called " manger " was probably of basket-work finds some support in No. 370 where the woven pattern is clearly seen. Moreover, roughly made basket-work mangers are seen in any Sindhi village of to-day, though not of the same pattern as those on the seals. It is possible that some of these " mangers " were made of clay, though no such vessels have actually been unearthed.

The manner of representation of the bull upon the seals has no exact parallel in either Elam or Sumer, so that the manner of its portrayal marks it, wherever it may eventually be found, as of Indian conception. We have numerous examples from ancient Crete and Egypt of bulls in a belligerent attitude, but on analysis they are seen to differ materially from the Indian examples.

A round seal (Type (h)) found in the Predynastic cemetery at Ur, and described and illustrated by L. Legrain,[1] [2] undoubtedly resembles certain of the Indus Valley seals in material and shape ; it has portrayed on it a short-horned bull with lowered head, and one of the signs,[3] and possibly a second, resembles an Indus Valley pictograph. Some of the signs are difficult to discern in the photograph of this seal, but they are said to be a scorpion, a fish, a pelican (?) and a round point. The fish, of course, commonly appears on the Mohenjo-daro seals ; it is as common there as in the Sumerian signary, but the scorpion has yet to be identified amongst the Indus Valley pictographs.[4]

It has been suggested that this short-horned animal may be a bison, but there are objections to this identification in that the bison has a high dorsal ridge which amounts to a hump in the bull bison,[5] a feature which is entirely absent in the animals on the seals. The horns, moreover, are not sufficiently curved to be those of a bison, and they are separate whereas the horns of the bison spring from a horny mass at the top of the head. The attitude of the animal with its head slightly lowered to one side is certainly as common to the ox as to the bison. It is within the bounds of possibility, however, that the beast may represent a cross between the ox and the bison like the *mythun*[6] of the Chin hills of Burma, an animal which is smaller than the bison and has the horns less curved. They are said to be gentle and inoffensive animals, but apparently are not always so.

1 *Museum Journal, University of Penn.*, 1929, 3 and 4, pp. 305-6, pl. XVI, 119. Also C. J. Gadd, " Seals of Ancient Indian Style found at Ur, " *Proceedings of the British Academy*, vol. XVIII, p. 13, No. 15. See also seal 500 in pl. XCVI in this book.

2 A very similar seal of grey steatite is illustrated in the *Antiquaries Journal*, vol. XIII, Pl. LXII, 2. That the seal is of Indus Valley origin is evident from the pictographs above the animal device. Its date is still uncertain, but it is most probably contemporaneous with the shaft grave in which it was found, namely, about 2,600 B. C.

3 Marshall, *Mohenjo-daro and the Indus Civilization*, pl. CXXV, cclxiii.

4 It appears nowhere on the pottery, nor on the seals or sealings. We very rarely find a live specimen in the ruins of Mohenjo-daro or in the country around.

5 Stockley, *Big Game Shooting in the Indian Empire*, pp. 104-6.

6 *Asia*, Aug., 1931, pp. 499, 500. Every endeavour is made in Burma to keep this breed pure. Friederichs compares this animal with the wild *gaur*, (*B. frontalis gaurus, H. Sm.*). For his reasons see *Der Alte Orient*, 32, pts. 3 and 4, 1933, pp. 14, 15.

The scene on seal 661, two bulls in combat, is the first that we have found. But though this seal was found at the low level of 21·2 ft. below datum, what appears to be an impression on clay of the identical seal was found only 9·4 ft. below datum (Pl. XCI, 20). It is possible that the clay sealing was brought up from a lower stratum by somebody who had been delving for brick. It is less likely that the seal itself was dropped in a hole by the searcher for brick, as its very peculiar elongated shape (Type I) makes it improbable that it was regularly worn. In view of these circumstances we should, as before mentioned, be careful of concluding that every object found at a low level is *ipso facto* of early date, or the reverse.

Oxen in combat must have been a familiar sight to many of the inhabitants of Mohenjo-daro, and it is a wonder that they were not portrayed more often on the seals and seal impressions. I do not remember an instance of such a scene in either early Sumerian or Elamite art, but it is comparatively common on the walls of tombs in Egypt, and one very notable example occurs on an axe-head of the Eighteenth Dynasty.[1]

Brahmani Bull.

Next in importance is the Brāhmani bull, of which we have 25 examples (Nos. 9, 119, 132, 153, 155, 249, 280, 306, 310, 314, 322, 362, 431, 441, 463, 535, 567, 609, 610, 611, 615, 626, 636, 677 ; Pl. XCIX, C). Although its original habitat has still to be found, this type of bull can for the present be definitely associated with the Indus Valley civilization, for though humped cattle appear in the art of other countries they are never shown with the immensely long horns that they possess on the Indian seals.[2] That humped cattle were known in ancient Elam is proved beyond doubt by the occurrence of a humped bull upon a vase of alabaster found at Susa and dated to the Second Period ;[3] indeed, they were known in that country until late times, for one is depicted on a cylinder of the Persian period.[4] A clay figure of an ox found by Woolley in a pre-Flood stratum at Ur appears to have a very definite hump,[5] and later on in the time of Gudea there are examples.[6] In Assyrian times humped cattle were brought into Assyria from the south, or "sea country", though it is true that in the shape of their horns and the lesser prominence of the hump it is impossible to compare them very closely with the animal on the Indus Valley seals.[7]

1 *Liverpool Ann. Arch. and Anthrop.*, vol. XVI, Nos. 3, 4.

2 The cylinder seal from Ur illustrated by C. J. Gadd in *Proceedings of the British Academy*. vol. XVIII, pl. I, fig. 6, seems from its main device to be of Indian origin, despite the fact that the Brāhmani bull is coarsely executed. Possibly the tree in front of the bull is the cocoanut, rather than the datepalm in fruit.

3 In other words, to the Early Dynastic Period, c. 2,600 B. C. ; *Mém. Dél. en Perse*, t. XIII, pl. XXXVIII.

4 Delaporte, *Cat. des Cylindres*, t. II, pl. 91, fig. 21.

5 This has not yet been published but was on view at the British Museum in 1930. A humped bull is incised upon a clay tablet recently found by Frankfort and dated by him to about 2,500 B. C.— the earliest positive evidence that we have of the existence of this variety of bull in Mesopotamia ; *Ann. Bibl. Ind. Arch.*, pl. I, g.

6 King, *Sumer and Akkad*, p. 69.

7 King, *History of Babylon*, p. 203, fig. 45.

The exceptionally fine portrayal of this animal on the seal in Pl. XCIX, C, is to my mind of even better workmanship than the magnificent animal on a seal found some years ago at Mohenjo-daro.[1] The technique is slightly different and it does not look to be the work of the same seal-cutter. Both animals are represented as wearing garlands round the neck.

Elephant.

The elephant appears on 17 seals (Nos. 57, 58, 110, 127, 169, 171, 195, 223, 245, 278, 304, 504, 512, 517, 573, 590, 648).

Unfortunately, some of these seals are incomplete, but with the exception of No. 648 they all show the animal as of the Indian type with straight back, or nearly so, and comparatively small ears. On none does the manger appear ; nor did it on the seals found in previous seasons, save only one, on which it is clearly depicted.[2] The animal on seal 512, it should be noted, faces the opposite way to the rest.

In the best cut figures, Nos. 127, 171, 245, 512, 573, very careful attention was paid to the rugous folds of the trunk, which, it should be noted, terminates in two very distinct processes. On Nos. 245, 512, 573, the fore-legs are very carefully cut and are not so wooden in appearance as is usual in representations of this animal. Great attention was paid on Nos. 195, 278, 504, 590 to the representation of bristles along the outline of body and head, which is perhaps the mark of a younger animal, for adults generally lose this hair. I can see no traces of tusks in Nos. 223, 278, 512 and it is possible that these figures were intended to represent females.

According to native lore, the elephant on seal 648 would be regarded as of very inferior breed owing to the slope of its back and the length of its legs. There are two species of elephants in India, the better one for work being the Komooria Dhundia, with flat back, thick stout legs and square head. The Meergha is a poorer type which has a sloping back, long legs, less square head and is not so stocky. If the elephant was domesticated in the ancient Indus valley, it may have been used only for state purposes and not as a hauler of materials, and its build would not have mattered over much.

Before concluding this section attention should be paid to the fine cylinder seal unearthed by Dr. Frankfort at Tell Asmar in Mesopotamia.[3] In company with a rhinoceros and a gharial, it bears a very fine representation of an Indian elephant and was from its style most certainly cut in India.[4] In that the cylinder seal is as rare at both Mohenjo-daro and Harappā as it is common in Sumer, it is remarkable that purely Indian devices should have been engraved on a seal of this shape. It may be that Dr. Frankfort's seal was used by an Indian trader in Sumer who selected the cylindrical form as perhaps more convenient in that country than the stamp seal for marking clay documents and the like.

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXI, 337. Friederichs identifies two species of this humped animal on the seals : the Gujarāt Zebu and a larger kind, which, however, he would not identify with the Brāhmani bull ; *Der Alte Orient*, 32, pts. 3 and 4, 1933, pp. 11-14, pl. 2, fig. 4.

[2] *Op. cit.*, pl. CXII, 369. The lack of the manger is by Friederichs explained as due to the elephant being represented as walking ; and walking animals need no crib (p. 19).

[3] *Ann. Bibl. Ind. Arch.*, 1932, pl. I, b.

[4] Judging from the fact that its ends were once capped, this seal looks to be of Sumerian origin.

Tiger.

Only eleven seals bear representations of the tiger (Nos. 45, 259, 260, 283, 347, 360, 484, 518, 522, 527, 640). On the first, the stripes are confined to the fore- and hind-quarters, whereas on the other examples, with the exception of Nos. 347 and 360 which are mythological and will be dealt with separately, there is a more normal representation of the beast. The same kind of manger or food-vessel is associated with this animal as with the short-horned bull, but below the head of No. 518 there is a receptacle of quite a different shape, if it is not a pictographic sign in an unusual position on the seal.

Seal 259, though unfortunately broken, bears one of the most realistic representations of the tiger that we have. It is shown with open mouth and protruding tongue, as is the lion in western Asiatic art in contrast with that of Egypt where the animal is always much less ferocious in appearance. The broad stripes of the body are cleverly suggested by double wavy lines which are broken at intervals to avoid monotony. It is possible that there is a collar round the animal's neck, but it may be that the seal-cutter had merely intended to show loose folds of skin. Though perhaps a collar would be out of place on a tiger, the trough that is generally placed before it suggests that this animal was sometimes kept in captivity.[1]

Buffalo.

The buffalo is not often depicted on the seals, and we have only eight examples to record (Nos. 257, 279, 332, 445, 510, 587, 663, 696). In all of them, the head is represented in the same way as in early Sumerian art to show both the rugged horns. On seals 257, 445, 587 and 696, there is the usual type of manger, and one set on a high pedestal on seal 332 apparently has some food projecting from it. Seal 279 has what would seem to be a partitioned feeding-trough below the head of the animal.[2] This latter seal and No. 510 are of so much interest in other respects that I will return to them later. There is no food vessel on No. 663.[3]

Rhinoceros.

On five seals a rhinoceros is portrayed (Nos. 131, 140, 309, 651, 684). In the first and third of these a dish-like manger in front of the beast resembles that in front of the short-horned bull and other animals. Seal 140 is most unusual in that the cult object hitherto exclusively associated with the urus bull is substituted. Closer examination of the animal figure on this last seal shows that except for the ears and horn, the head is very similar to that of the urus, especially in its upright position,[4] and so is the body with the exception of the warty

[1] Burton (Sir R.) has stated that in his time tigers were rare in Central and Lower Sindh but were common in the North where they strayed down from the jungly forests that line the banks of the Upper Indus; *Sind Revisited*, vol. II, p. 73.

[2] Compare this object with one below another animal on a seal found in a previous season. It may be a pictographic sign (?). *Mohenjo-daro and the Indus Valley Civilization*, pl. CXV, 550. *Cf.* also seals 430 and 518. The former has what is obviously an offering-tray at the right of the base of the tree.

[3] Friederichs regards this animal as being in an established state of domestication and with Hilzeimer thinks that India was the home of the buffalo, as also of its use as a draught-animal; *Der Alte Orient*, (1933), 32, pts. 3 and 4, p. 14.

[4] Compare the position of the heads of the rhinoceroses on the seals already published; *Mohenjo-daro and the Indus Civilization*, pl. CXI, 341-7.

excresences peculiar to the rhinoceros. The four feet are those of a rhinoceros. We seem to have here, therefore, a composite animal of a new form, whose association with the urus bull allowed of the use of the cult object peculiar to that animal. Indeed, it is possible that on this seal we have a mingling of two cults.[1]

Seal 651 is in a perfect state of preservation and depicts the rhinoceros with greater fidelity than on any other seal that we have found. The figure, however, suffers from an over-elaboration of detail.

Gharial.

Gharials, or fish-eating crocodiles, are rarely found on the seals of Mohenjo-daro; seals 45, 133 and 488 are the only three from this section of the site. On No. 45 the reptile is carved on one of the two inscribed sides of the seal, a very unusual and subordinate place for its representation. It is very clearly depicted on seal 133, and I am inclined to regard the fish before it as the prey of the crocodile rather than as a pictograph. The cylinder seal, No. 488, shows a fish in the jaws of the reptile, as on seal 45 also. The gharial appears on two sealings in Pl. CI, 2, 3.

At the present day, only the gharial is found in the Indus, though the mugger is said still to exist in the Hab river in Sindh. The former is quite harmless to man. There are also mugger in a sacred tank at Mangho-Pîr, ten miles N. W. of Karachi, one of which is said to be 500 years old (?); they are sacred to a *pir* or saint, and live goats are offered to them by visitors.[2]

It is impossible to say whether the gharial which alone is represented on the seals and sealings was regarded as sacred at Mohenjo-daro, but it is unlikely that it was, as it is so seldom represented and with two exceptions only[3] occupies a subordinate place when it is depicted. On the other hand, a well cut model in shell has been found,[4] though none are known in clay.

Frog (?).

Seal 45 is unusual in that two of its edges as well as both faces are incised, one edge bearing the figure of a gharial, as above mentioned, and the other an animal that is not quite clear but to my mind resembles a frog. If so, this is the first representation of this creature that we have found. These two figures and the tiger on the same seal are all somewhat roughly cut.

Antelope.

The animal on seal 3 apparently represents the chinkara (*Gazella Bennetti*) which is found all over the plains of India wherever there is open country. There is the cult object in front of it that usually appears with the urus-like animal. It seems that this seal had been re-used, for the inscription was removed in order to allow the animal only to be used for impressions. Owing to the roughness of the very obvious removal, it seems likely that the seal was picked up by a poor person and kept for his own use.

[1] Possibly this animal was supposed to have one horn only and on this account was associated, in this case at least, with the one-horned rhinoceros. See, however, note 2, p. 337.

[2] D. Mackay, *Indian State Railways Mag.*, Aug., 1931, p. 847.

[3] *Mohenjo-daro and the Indus Civilization*, pl. CXI, 361; also No. 133 of this book.

[4] *Op. cit.*, pl. XCVI, 14.

The animals on seals 479, 488(?) and 565 also appear to be antelopes. The first of these seals is of unusual interest because it has quite a Sumerian look about it;[1] it is made, moreover, of a fine white, marble-like stone, a material which is new to us at Mohenjo-daro. An enlargement of this seal and also its back are seen in Pl. C, (B and C). In view of its unusual subject, the arrangement of the animals, and the material, we can safely assume that this seal was imported, perhaps from Elam.[2] Seal 554 [see also Pl. C, (D)] shows an antelope or wild goat in a posture that is far more common in Sumerian art than in the art of ancient Sindh, though it should be noted that one of the heads of the three-headed beasts on seals 24 and 494 is looking backwards in the same manner. This attitude is quite usual to antelopes and wild goats, for when running from danger they frequently stop and look behind them without changing the position of the legs or body. And the frequent representations of this particular posture of these animals in early Sumerian and Elamite art, especially on the painted pottery, bespeaks a close observation of nature.[3]

Goat.

The goats upon two of the seals (Nos. 430, 606, and Pl. XCIX, A) with their horizontal, spiral horns and short upturned tails are apparently copies of the domesticated variety, save that they have human faces. As these two seals are of unusual interest they will be more fully dealt with later. On the small seal 670, also, a domesticated goat is seen, but looking backwards as wild goats are frequently represented.[4] On seals 554 and 673 and in Pl. C, (D), is seen the mountain goat (*Capra aegagrus*) which still inhabits the Khīthar Hills in Balūchistān and has a very wide range, as far, indeed, as the Taurus Mountains in Asia Minor.[5] On both seals the animal has a very shaggy neck. The long beard of the animal on seal 673 is quite correct, since the beard of this species sometimes reaches a length of 6 ins. The curious object behind and above the animal on this latter seal may be a pictographic sign, a variant of cccxxvii-viii in the sign list prepared by Smith and Gadd.[6] It looks, however, suspiciously like a manger on a stand, and it may have been placed in the position that it occupies solely because there was no room for it in front of the animal.

It is at present an open question whether the two animals on the cylinder seal No. 488 are goats or antelopes, as also the two animals beneath the seated god on seal 420.

Composite Animal.

The beast on seals 24 and 494[7] represents a combination of the usual urus-like animal with two other heads, those of an antelope and a short-horned bull.

[1] For the arrangement of the animals, *cf.* certain seals from Susa; Delaporte, *Cat. des Cylindres*, I, pl. 22.

[2] *Cf.* the boss on the back of this seal with that on a seal lately found in Sumer; C. J. Gadd, "Seals of Ancient Indian Style at Ur." *Proceedings of the British Academy*, vol. XVIII, pl. I, No. 1.

[3] Herzfeld, *Samarra*, V, p. 22, fig. 26. *Mém. Dél. en Perse*, t. VIII, p. 10, fig. 20; t. XIII, p. 43, fig. 144. Delaporte, *Cat. des Cylindres*, I, pl. 24, fig. 9.

[4] A goat with upright horns, or they may be ears, appears amongst the pictographs on seal 313.

[5] *Cf. Friederichs, Der Alte Orient*, (1933), No. 32, pts. 3 and 4, pp. 16, 17.

[6] *Mohenjo-daro and the Indus Civilization*, pl. CXXVII. Note also the apparent food-vessel in Pl. C (D).

[7] An enlarged picture of the latter seal is given in Pl. XCIX, B.

A possible explanation of this unusual device is that its owner may have sought the protection or assistance of three separate deities represented by the heads of these three animals. The inscription on the first of these seals is unusually long; it would apparently have been written on the actual seal from right to left. The arrangement of the two extra heads on this seal suggests that they were cut as an afterthought, and, if this was so, the lower line of inscription may have been added at the same time. Possibly, this additional line refers to the nature or meaning of the three-headed beast, the owner's name being in the usual place above. We now have three examples of this three-headed animal, one having been found prior to 1927.[1] In this last-mentioned specimen the body is that of the urus-like animal, two of the heads are those of ibex and antelope, and the third of the short-horned bull.

Four seals, Nos. 411, 450, 521 (see also Pl. C, (A)), and 636, from the lower levels have the curious human-faced, composite animal carved upon them that was mentioned in the first book on Mohenjo-daro. The fore-legs are those of an ox-like animal, and the striped hind-quarters and feet resemble those of a tiger. There are short curved horns, and the human face shown in profile (especially clearly in No. 450) apparently has an elephant's trunk hanging from the chin and a pair of tusks. We have in this figure, then, a fusion of no less than three, possibly four, animals with the human form, which perhaps represented a deity that was worshipped at Mohenjo-daro. I am inclined to think that this composite creature was perhaps also portrayed in statue form, as the representation of it on the seals shows it to be wearing garlands with which it is likely that its images were adorned.

That this figure has an elephant's trunk I regard as certain, despite the ragged look of some of these appendages which is especially noticeable on seal 450, where it at first sight appears to be part of a collar round the neck; the tusks of the elephant are quite clear in every case. The tail is always represented as held high at right angles to the body, and there are claws or pincers at its tip. This, unfortunately, is not very clear on any of the seals illustrated and comparison should be made with an earlier found seal.[2] The tail is substantial and sometimes striped; in conjunction with the tiger-like hind-quarters of the animal it was probably intended to represent the tail of that animal, though it is not of uniform thickness throughout. Some mediæval writers have declared, quite erroneously, that the lion has a claw in the tip of its tail with which to lash itself to anger. Possibly the same idea was prevalent in ancient Sindh concerning the tiger; if so, the presence of a claw or claws at the tip of the tail of these composite animals would be explained.

Composite animals are, of course, well known in ancient art in other parts of the world; they are supposed to have been invented, if we may thus term it, in Sumer and Elam, whence came the later "beast art" of Europe.[3] It is not outside the bounds of possibility that the conception of a composite animal originated in India and spread from there gradually to the west by the land route.

1 *Mohenjo-daro and the Indus Civilization*, pl. CXII, 382.

2 *Mohenjo-daro and the Indus Civilization*, pl. CXII, 380.

3 Swindler, *Ancient Painting*, p. 51.

For the present, we may provisionally assume that these composite animals appear only on the seals of the earlier occupations, as none have been found above the level $-12 \cdot 6$ ft. and the lowest at $19 \cdot 9$ ft. below datum. But as they are by no means numerous it may be quite by chance that none have been found in the upper strata.

Seals 234 and 359 are unusual in that although the animal represented is the urus bull the seal-cutter gave it other horns in place of the single, forward curved horn typical of that animal. Both these seals are well made and are obviously not the work of an amateur. In shape the horns are very like those of the composite animals on seals 411, 450, 521, 606, etc., and also those of the Brāhmani bull.

The animal on a fragment of a seal, No. 330, cannot at present be satisfactorily identified. The folds of the skin suggest the urus, but there is a manger before it in place of the usual cult object. Moreover, the animal faces the opposite way from the great majority of the animals on the seals.

In place of the usual cult-object in front of the urus on seal 316, there is a curious figure that from the position of the arms and legs appears to be dancing before the animal. What this figure is intended to represent it is difficult to say. The tail precludes its being human, and it can hardly be a monkey on account of the large ears, which the impression does not show clearly.[1] Possibly it represents a human figure wearing a mask and false tail for a ceremonial dance before a deified animal. I cannot conceive that the seal-cutter intended to portray a monkey but made a mistake about the size of and position of the ears; for though now extinct in Sindh the animal must have been well known in those days since we have many well-modelled figures of it.[2]

Possibly in this animal we have the monkey-like imp that, according to Frankfort, appears on engraved objects in Crete in the Second Early Minoan Period, in late Syro-Hittite glyptic art, and on Mesopotamian seals of the Third Dynasty of Ur. Frankfort deduces from the position of the imp "that he personifies the evil of which the worshipper desired to be freed".[3]

The two-horned tiger on seal 360 is already known to us, as it occurs on a previously found seal, engaged in combat with a horned hero or deity.[4] On this seal it is quiescent, but with open mouth. The length and curvature of the horns recall those of the humped rather than of the short-horned bull. This creature may perhaps represent the fusion of two deities in their animal forms.

Human Figures.

Except in the inscriptions on the seals where the human figure frequently occurs as a pictograph, we rarely find examples of the human form used as a main motif.

[1] The pottery figures in Pls. LXXXVIII, 3, 12; LXXXI, 14, of this book may represent the same animal. The penis is shown, as it also appears to have been on the pottery figures.

[2] In particular, see *Mohenjo-daro and the Indus Civilization*, pl. XCVI, 11–13, and Pl. LXXX, 1, 2, of this book.

[3] *Journ. Eg. Arch.*, vol. XII, p. 94.

[4] *Mohenjo-daro and the Indus Civilization*, pl. CXI, 357.

Seal 222 depicts a figure, probably that of a deity, seated in what may be a *yogi* attitude with the heels pressed together[1] on a low dais, whose legs represent those of a bull.[2] The arms are outstretched on either side, but it is possible that the hands are intended to rest on the knees and that the seal-cutter merely raised them slightly to obviate any confusion of the arms with the legs.[3] [4] On each arm there is a large number of bracelets. The head-dress is a twig with leaves like those of the *pipal*. The horns, if, indeed they are horns, are definitely separate from the head; they are, moreover, represented as fastened to the base of the twig. The figure has three faces, one in front and two in profile.

On seal 235 there is a somewhat similar figure. The stool is omitted, however, and the figure is apparently seated upon the ground. The head-dress consists of two horn-like objects between which there appears to be a spike of flowers. A pigtail hangs down on one side of the head which has one face only, in profile, facing to the right. Unfortunately this seal is badly broken, but enough remains to show that the figure was surrounded by pictographs arranged in somewhat haphazard fashion.[5]

Seal 420, an enlargement of which is shown in Pl. C, (F), is particularly well preserved; it has been described by Sir John Marshall who has identified the figure with the god Śiva.[6]

Comparison of these three seals shows many points in common. Apart from the ornaments they wear the figures are nude, save for a cincture worn round the waist and apparently also passed between the legs, a garment very similar to the *langat* worn at the present day in India. On seal 222 the figure has only one face, but on Nos. 235 and 420 it has three. On two of the seals (Nos. 222 and 420), the god is seated on a low stool, whose supports in one case are shaped like the legs of a bull and in the other somewhat like an hour-glass. On Nos. 222 and 235, the head-dresses are very similar, but surmounted by a plant motif with three branches in the one case and only a single branch in the other. The larger figure on seal 420 lacks this spray of foliage, but has instead the fan-shaped ornament commonly associated with the pottery female figurines (Pls. LXXIII, 4; LXXV, 1, 6, 21; LXXVI, 9, 21).

All these figures wear a large number of bangles from the armpits to the wrists, and on seal 420 there is also a triangular ornament or else a number of strings of beads. It is difficult to determine how the hair was worn, except that on seal 235 it apparently hangs in a long rope down one side of the head; if this seal had not been broken anciently, it is probable that it would have been seen to terminate with a bow, as on the pigtail of the figure on seal 347. Though all three of these figures appear to be male deities, the pigtail of No. 235 is also worn by the tree spirit and the worshipper and the seven ministrants on seal 430, all of which figures appear to be female. Possibly both male and female

[1] For references to this curious posture, see Ramaprasad Chanda in *Modern Review* (Calcutta), Aug. 1932, pp. 158-9. Indians can assume this posture with no great difficulty, though it must be tiring to maintain it for a long time.

[2] *Cf.* some of the furniture found in Egyptian graves of the First Dynasty; Petrie, Wainwright and Gardiner, *Tarkhan I and Memphis V*, pl. VIII.

[3] Those statues that are nearly complete also show a hand on each knee. See Pl. CV, 60, of this book and Pl. C, 1, 4, of *Mohenjo-daro and the Indus Civilization*.

[4] Care was also taken not to confuse the legs with the seat of the stool.

[5] This was in all probability a square seal.

[6] *Mohenjo-daro and the Indus Civilization*, pp. 53-6, pl. XII, 17.

deities were represented with pigtails on occasion ; I cannot think that the figure on seal 235 is that of a female deity.

On all three seals there are pictographic signs which appear to have no relation to the figure itself and are probably merely the names of the owners of the seals. On No. 420 there are six beasts and the figure of a man around the god ; on the left of the impression an elephant and a tiger with a man between, on the right a rhinoceros and a buffalo, and below the dais on which the god is seated there are either two antelopes or mountain goats. As before mentioned Sir John Marshall has identified this deity with Śiva in his aspect as *Paśupati,* " lord of Beasts "

The carving of these three seals is not particularly good, though every care was taken with the details shown. Possibly the seal-cutter was not so experienced in the portrayal of the human subject as with certain animals, as, for instance, the urus-like animal and the other types of bull.

These seals are all of Type (*b*) pattern with the usual perforated boss for suspension.

The animal on seal 279 has already been mentioned, but there is also a figure, though it is difficult to see even upon the seal itself, of a man with his foot upon the animal's nose, grasping a horn with one hand and with the other about to thrust a spear with a barbed point into the animal's back.[1] Exactly what this scene is intended to convey it is difficult to say. I would suggest, with a considerable amount of diffidence, that it may represent a belief not unlike the legend of *Dundubhi*, the buffalo demon, whom Śiva and other gods attacked with tridents ; though their weapons proved powerless against the animal, they eventually killed it by means of incantations.[2] The spear in this scene is barbed, but no weapon of this kind has yet been found at Mohenjo-daro.[3] It seems evident that the introduction of the human figure on this seal was an afterthought, for but little space was left for it and the wear at the edge of the seal has nearly obliterated it. Possibly it was the owner and not the seal-cutter who was responsible for the addition of the figure. Whether the partitioned object in front of the animal is a food-vessel or a pictograph is uncertain.

On another seal, No. 510, a buffalo appears to have attacked a number of people who are lying on the ground around him in every conceivable attitude. It is undoubtedly the wild rather than the domesticated species that is represented on this seal, an altogether finer animal which stands 16 to 16½ hands high at the shoulder. Unlike the domesticated variety, it is very truculent and when wounded is very savage ; it was, therefore, a fitting *vāhana* or vehicle for Yama, the god of death.

The little drama depicted on this seal may represent an episode that actually occurred to some of the inhabitants of Mohenjo-daró ; the buffalo may have been hunted in Sindh in ancient days. But we may perhaps see in this scene a god, or the emblem of a god, attacking his enemies, a parallel to the well-known scene

[1] *Cf.* the same scene on two sealings illustrated in Pls. XCI, 4 (*a*) ; XCII, 11 (*b*).

[2] Oppert, *Oriental Inhabitants of India*, pp. 473-4. *Cf.* the sealing in Pl. XCII, 11.

[3] *Cf.*, however, a barbed spear-head found at Ur ; Woolley, *Antiquaries Journal,* vol. X, pl. XLVII, fig. b.

on the slate palettes of the First Dynasty of Egypt, where the king himself in his attribute " Strong Bull " gores a prostrate enemy.[1]

A little scene on a clay sealing (Pls. CII, 5 ; CIII, 8) which will be discussed later shows either a buffalo or a bull (I am inclined to think the latter) tossing a man over his head ; unless we are to believe, which may not be at all improbable, that the man is vaulting over the animal as in a sport that was much favoured in Crete in early times.

The man seated in a tree on seal 522 with a tiger below is now quite a familiar subject on the seals of Mohenjo-daro, but this particular seal is so well preserved that it is worth reproducing as by far the best example of this scene that we have found as yet. The same drama also appears on the clay amulets (Pl. XC, 13, 23, 24). In view of its frequent occurrence it undoubtedly illustrates a legend which was very popular.

Seals 75, 86, 122 and 454 all bear the same, extremely unusual scene, and the descriptions of seal 75 which is the clearest will serve for them all. The lowest level at which one of these seals was found was 13·4 ft. below datum.

This most interesting seal (No. 75) portrays a hero or a deity of very muscular appearance gripping a tiger on either side of him by the throat. The figure is nude except for a narrow band round the loins, and is shown with head in profile and possibly with the tongue hanging out.[2] Either a helmet with knobs behind is worn, or a peculiar arrangement of the hair is represented. The animals have open mouths and claws. As is customary, the inscription above this scene appears to have no reference to it, for on the other similar seals the inscriptions are completely different.

This seal recalls a scene on the ivory knife-handle from Gebel-el-'Arak in which a human figure is at grips with two lions.[3] There can be no doubt that the scene on these four seals shows Sumerian or Elamite influence, but to bring it into agreement with the Indian fauna tigers have been substituted for lions. The nude figure itself is not unlike certain figures of Gilgamesh, and it is conceivable that the knobs at the back of the head are copies of the coiled locks of that deity. Very much the same scene was portrayed on the wall of a prehistoric tomb at Hierakonpolis in Egypt, the animals, of course, being lions.[4]

By far the most interesting seal with representations of the human figure is No. 430, which appears again on a larger scale in Pl. XCIX, (A). Here a tree-goddess or spirit, in a *pipal*-tree as shown by the shape of its leaves, appears to a kneeling worshipper behind whom stands a goat with a human face.[5] In the register below are seven ministrants or votaries, each dressed in a short kilt

[1] Capart, *Primitive Art in Egypt*, pp. 242-3, figs. 181-2 ; see also p. 240, fig. 179, for the king in his aspect as a lion.

[2] I have examined this head very carefully and think that the apparent tongue is a break in the stone and was not intentionally cut. It is, however, difficult to be certain on this point. In Indian art, deities are sometimes represented with protruding tongue to indicate fierceness or rage, but this feature seems to be confined exclusively to goddesses.

[3] J. de Morgan, *La Préhistorie Orientale*, t. II, p. 283, fig. 326. *Ancient Egypt*, 1917, p. 29.
Langdon, however, denies, that this figure represents Gilgamesh pointing out that the hero is invariably represented as nude save for a band round the waist ; *Journ. Eg. Arch.*, vol. VII, p. 145.

[4] Quibell and Green, *Hierakonpolis*, II, pls. LXXV : LXXVI.

[5] *Cf.* seal 606.

and wearing a long pigtail and a spray of leaves or a feather in the hair. The tree-spirit is apparently nude, but has a pair of horns between which is a projection which was probably intended to represent a sprig of foliage like that worn by the deities on seals 222 and 235. The worshipper has a very similar head-dress and like the goddess and the seven ministrants is adorned with many bangles. The apparent object in front of the kneeling figure is merely a fracture in the seal, but beyond the foot of the tree on the right is a square partitioned receptacle very similar in conception to the pottery dishes in Pl. LXVI, 12, 15, 21, 27, 34. This receptacle was probably intended for offerings to the goddess, and it is not unlike the object in front of the buffalo on seal 279.[1]

There is a very similar scene, but not nearly so clear, on both sides of a square tablet of grey-coloured paste found in a previous season.[2]

Though no doubt the figure in the tree represents a goddess, the kneeling figure may also be a deity as the same head-dress is worn by both, or it may be an ordinary human being attired in a manner that was thought to be pleasing to the goddess. I am inclined to regard the worshipper as a goddess also, but one of lower degree than the one in the tree. The seven figures below may be deities of lesser rank, or even the daughters of the principal deity. Their number seven is significant, for to it a mystical quality is attached in India as well as in other parts of the world.[3]

The goat with a human face is certainly not a sacrificial animal as I suggested it might be on the previously found seal where the face also is that of a goat. The presence of the animal in this scene recalls the fact that in Europe at the classical period tree spirits were believed to take the shape of a goat or to have goat's feet.[4]

The conventional arrangement of the tree may have been intentional in order to give an unbroken view of the tree-goddess;[5] or the release of the deity by severing the tree may be represented, as on the pottery amulet figured in Pl. XC, 23. It certainly does not appear to be an aged tree, and perhaps the oval at its base represents a hole made in the ground round it to retain water.

Combined Human and Animal Figure.

The extraordinary figure shown in seal 347 is entirely new to us. It is apparently a combination of a woman with a tiger's body, but not centaur-like as

[1] Hunter regards this object as merely a pictographic sign, that is in front of the animal because there is no room for it in the line above. The object, which is obviously an offering vessel, appears in the same position on a seal found prior to 1927 (*Mohenjo-daro and the Indus Civilization*, pl. CXV, 550); *Journ. Roy. Asiatic Soc.*, April, 1932, p. 472.

[2] *Mohenjo-daro and the Indus Civilization*, pl. CXVIII, 7.

[3] The seven twin daughters of the goddess Bau of Sumer, or Sitala and her six sisters in Indian mythology. "The creative energy of the principal gods is personified as seven divinities (Saptamātrka)"; Abbott, *Keys of Power*, p. 301.

[4] This association of the goat-like form with the spirit of a tree still survives in the remoter parts of the Slavonic area; *Ency. Brit.* (14th Edit.), vol. 7, pp. 189-90.

[5] With the exception of the conventional arrangement of the *pipal* on seal 389 of *Mohenjo-daro and the Indus Civilization*, trees are represented in a very naturalistic fashion on both the seals and amulets.

the fore-legs are certainly human.[1] [2] On the head there are two spiral horns extended laterally which might equally well be those of a goat or a sheep, though in view of the animal on seal 430 they are probably the former. Rising from between them is a similar spike of flowers or leaves to the one on seal 235. As on that seal also, a long pigtail is worn; it is apparently tied at the end with a bow. This pigtail, as also on seal 430, projects from the head in such a way as to suggest that it was stiffened, but possibly it was so represented solely to avoid any confusion with other parts of the figure, a technique to which I have alluded before. The human portion of the figure is nude save for a short skirt, longer behind than in front, and it wears armlets and bracelets.[3]

If we compare this figure with that on seal 235, there are certain points in common. Both figures appear to be of the same sex and both have a horned head-dress with a spike of leaves standing between the horns. There is a considerable difference, however, in the shapes of the horns on the two seals; on No. 235 they may be those of a buffalo—the turned-in tips suggest this, as well as the fact that they are grooved—whereas on seal 347 they are obviously the horns of a goat.[4] The pigtail so prominently shown on both these seals may have been the distinguishing mark of a deity. The close association of this figure with a tiger suggests that it was not of a benign nature. On the other hand, the horns imply a connection with an animal very opposite in nature to the tiger.

As Siva in his form of *Paśupati* has been identified on one of the seals,[5] it would perhaps not be unreasonable to connect the figure on seal 437 with Durga his consort, whose vehicle is the tiger. It depends entirely whether the human part of this composite figure is male or female; should it be male, it should be remembered that Śiva himself is often represented as seated on a tiger's skin.

Solar Motif.

The urus-like animal, or more probably the divinity of which this animal was a symbol, may have been a solar deity, if we accept as the sun-disk the curious object with rays seen on seal 641 and in Pl. C, (G), in which the head of this beast takes the place of the sixth ray. If we conclude that this motif represents the sun, it is of considerable importance, for with the exception of some doubtful representations on painted pottery (Pl. LXVIII, 21, 24) neither the sun, moon nor stars appear anywhere in the art of the ancient Indus valley, though such devices frequently occur on the early seals and painted pottery of

[1] I am taking this figure to be female by comparison with seal No. 430, but there would be really nothing against its being of the opposite sex, except perhaps the long hair.

[2] In Greek art the early form of centaur is also represented with human fore-legs, and it was not until later that the centaur was human only as far down as the waist; *Ency. Brit.* (14th Edit.), vol. 5, p. 122.

[3] Clearly discernible on the seal itself.

[4] Since we do not know whether the species *Ovis aries, Palænoægypticus,* the sheep with lateral spiral horns that is so commonly represented in Egyptian and Sumerian art, was known to, or domesticated by the Indus Valley peoples, it would be safer to regard this animal as the goat. But see Friederichs, *Der Alte Orient,* (1933), No. 32, pts. 3 and 4, pp. 15, 16.

[5] *Mohenjo-daro and the Indus Civilization,* p. 54.

Sumer and Elam.[1] Nowhere else have I been able to find any pictured representation of an animal so intimately connected with the sun-disk as on this seal, and the peculiarly shaped disk itself without the animal is very rarely seen. It may, perhaps, be compared with what appears to be a solar disk on a vase of the Bukk Culture (Danubian I),[2] and also with a figure, but with four arms only, on an ivory seal of E. M. III date from Knossos.[3] The sun is also represented in a somewhat similar manner on a pottery seal from Kish[4] and on similar seals from Susa. These sun-symbols became stylized at a later date into the form seen on early Cappadocian and Macedonian pottery, where the rays are hook-like in form and more numerous.

It is possible that the inhabitants of the early Indus valley, an agricultural people, did not pay that attention to the stars, which according to Smith is a distinguishing features of the religions of agrarian populations.[5]

Ship.

Seal 30, an enlarged reproduction of which is seen in Pl. LXXXIX, (A), was found in two pieces. It is rectangular in shape, and the incomplete motif on the back consists of roughly scratched lines that cross one another (see No. 36 in same plate). The face is nearly complete and clearly bears a representation of a ship, the first of its kind to be found on a seal from Mohenjo-daro, though a vessel scratched on a pottery sherd is illustrated in Pl. LXIX, 4. Why representations of boats and ships are so rare it is difficult to explain, as it is more than probable that the river Indus was largely used for traffic of all kinds, and river craft should have been perfectly familiar to the inhabitants of Mohenjo-daro.

The vessel portrayed on this seal is boldly but roughly cut, apparently with a triangular burin, and is apparently not the work of an experienced seal-cutter; hence its interest, because, probably in consequence of inexperience, the motif is not a stereotyped one. The boat has a sharply upturned prow and stern, a feature which is present in nearly all archaic representations of boats; for example, the same type of boat appears on Early Minoan seals,[6] on the Predynastic pottery of Egypt,[7] and on the cylinder seals of Sumer.[8] In the last mentioned country this type of boat was used down to Assyrian times. On the ivory knife-handle of Gebel-el-'Arak in the Louvre are depicted ships which bear a

[1] Mr. C. J. Gadd would detect an astral significance in some of the motifs depicted on a few peculiar seals lately unearthed in Sumer, which from their shape, form of boss, and legends appear to have been strongly influenced from India, if, indeed, they were not made in that country. "Seals of Ancient Indian Style found at Ur"; *Proc. Brit. Acad.*, vol. XVIII, pp. 21-3.

[2] Childe, *Danube in Prehistory*, p. 61.

[3] Evans, *Palace of Minos*, I, p. 118, fig. 87, No. 5. See also II, p. 196, fig. 105 (*c*).

[4] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. I., pl. XLII, 5.

[5] *Early History of Assyria*, p. 47.

[6] Hall, *Civilization of the Bronze Age of Greece*, pp. 35, 39.

[7] Petrie, *Prehistoric Egypt*, pls. XIX, XX, XXII, etc.

[8] Ward, *Seal Cylinders of Western Asia*, pp. 40-2: Delaporte *Cat. des Cylindres*, t. II, pl. 70, figs. 2 and 5. It should be noted that high prows and sterns are necessary in a river with shallow edges and seas with gently shelving shores.

very close resemblance to the one on our seal; these and the other scenes on this handle are, indeed, explained by Petrie as not Egyptian, but the product of an Oriental people inspired by Elam and the Tigris region.[1]

It will be noticed that this boat is shown as lashed together at both bow and stern, indicating perhaps that it was made of reeds like the primitive boats of Egypt and the craft that were used in the swamps of southern Babylonia. The hut or shrine in its centre also appears to be made of reeds and fastened at each end of it is a standard bearing an emblem comparable, though not in actual shape, with the ensigns on the Gebel el-'Arak handle.[2] [3] At one end of the boat on the seal from Mohenjo-daro a steersman whose head is unfortunately missing is seated at a rudder or steering-oar. The seal-cutter here was not at all sure of his figure and placed it well above the seat.

The absence of a mast suggests that this boat was used only for river work, as are some of the wooden boats on the Indus at the present day; though the modern boats have a less acutely upturned prow and stern, they usually have a similar cabin-like erection in the middle, sometimes constructed of wood and sometimes of reeds. The boats of to-day are chiefly used for fishing and are either rowed or punted against the stream.

This seal is invaluable as indicating a type of vessel that was in use in ancient Sindh. Its owner was perhaps connected with shipping of some kind, for in engraving it most careful attention had been paid to detail.

Trees.

It is seldom that trees are seen on the seals, though they are fairly common on the sealings (Pls. XC, 13, 23; CIII, 8). The tree on seals 509 and 522, in which a man is seated on the latter, appears to represent some kind of acacia. Upon one side of a round, thin seal, No. 604, a very conventionalized tree is carved, which it is almost impossible to identify, and exactly the same kind is seen on a seal of similar type found some time ago.[4] Of the tree on the seal in Pl. XCIX, (A), there can be no doubt; its leaves are clearly those of the *pipal*. I am inclined to regard the tree on the clay amulet in Pl. XC, 23b, 24b, as a *nīm* from the way in which the leaves hang downwards; and possibly it is this tree that appears on the two round seals mentioned above. The *nīm* tree is regarded as sacred in most parts of India. Its leaves are supposed to repel snakes and they are eaten to cure various ailments. It is also the dwelling-place of deities, especially the godlings of disease; and twigs of *nīm* are much favoured as tooth-brushes by the Indians of the villages who fray out one end.

[1] *Ancient Egypt* (1817), pp. 26-36.

[2] *Op. cit.*, p. 28, fig. 3. A very similar ensign is seen on the boats portrayed on the Predynastic pottery of Egypt.

[3] Standards are still carried by the fishing boats on the Indus to-day. They are pennon-like strips of wood, mostly painted red and sometimes fretted out into a pattern. Questioned as to their meaning, the fishermen said their sole purpose was to tell the direction of the wind. But as many of these standards are immovable, it seems not unlikely that they originally had some other significance which has been forgotten

[4] *Mohenjo-daro and the Indus Civilization*, pl. CXIV, 527. There can be little doubt, I think, that the tree carved on these two round seals was regarded as sacred as so much space was devoted to it.

Cross Motif.

Seal 1, whose shape recalls the button-seals of Egypt bears on its face a Greek cross with equal arms. This form of cross is quite commonly represented in Babylonian and Elamite art; in the former country, from early times down to and including the Kassite occupation.[1] As a rule, however, the cross of the Indus Valley civilization has the horizontal limb shorter than the vertical one, somewhat after the style of a Latin cross.[2] It is of interest, therefore, to find that what we may perhaps term the Elamite cross was also in use in India.[3] Like the Babylonian and Elamite examples, these crosses, whichever their shape, are framed inside another. This seal (No. 1) is made of a turquoise-blue vitreous paste. An immature boss at the back is bored for suspension.[4]

Seal 156 which is made of steatite has a similar cross cut upon it, but it is decorated both inside and round about with circles containing a central point. The seal-cutter responsible for this simple but none the less effective design has also decorated the sides of the seal with similar roundels. The back of this seal bears the prominent, perforated boss usual to Type (b).[5]

Seals of Unusual Shape.

Seal 73 evidently served both as a separator for a necklace and as a seal or amulet, for it has two parallel holes pierced through it. It is carefully made of some kind of paste (steatite (?)) which was glazed, and only one side was engraved, the back being left perfectly plain.

No. 229 (see also Pl. LXXXIX, (B) and (C)) is a most unusual seal. Cut from a piece of almost black steatite, it has a perforated boss at the back, of the usual shape; but the face of the seal, as is seen in Pl. LXXXIX, is recessed 0·2 in. over roughly three-fifths of its area. The edge of the step thus left bears a roughly cut pictographic inscription, an impression of which is placed just above the photograph of the seal. Furthermore, there is a deep wedge-shaped groove, 0·31 in. wide by 0·15 in. deep, in the upper edge of the seal. From its shape this groove may have been intended to attach the seal by sliding it on something. Otherwise it remains inexplicable, unless a piece of steatite with a groove already cut for some other purpose was subsequently used for making this object.

On the lower portion there is an exceedingly well cut figure of a bull, but the feeding-vessel that usually accompanies this animal is missing. It seems very possible that this seal was re-cut at some time and the original figure removed to give place to another. How this object was used it is hard to see, for it would be difficult to imprint both the pictographic inscription and the animal at the same time. Possibly, as already suggested, the inscription alone was used

[1] *Mém. Dél. en Perse*, t. VIII, p. 10, fig. 20. The same form of cross is an ideograph in the Minoan script; Evans, *Palace of Minos*, I, pp. 515-6.

[2] *Mohenjo-daro and the Indus Civilization*, pl. CLV, 34. See also pl. XCI, 18, of this book.

[3] As it is more commonly found on Elamite and Kassite seals, the design may have originated in Elam. I do not think we should look to India, as the Greek form is so rare in that country.

[4] This is the usual boss on the button seals, not like that of the ordinary square seals of Type (*b*).

[5] Compare the circles that decorate the face and edges of this seal with those that ornament the bosses of certain seals from Ur; C. J. Gadd, *Proc. Brit. Acad.*, vol. XVIII, pls. II, III.

for sealing and the figure of the animal had merely an amuletic value.[1] The inscription on the edge of the step could never have been used successfully. The back of this seal still retains the marks of the saw used for the preliminary shaping of the boss. There is no trace of any white coating; possibly it was intended to apply one later, but it was never done.

The absence of the animal on seal 321 is unusual, especially as space had evidently been left for it. As a general rule, the engraver first started on the animal and probably left the inscription to be filled in to the order of the customer.

The round seal, No. 500, is the only one found at Mohenjo-daro since 1927.[2] Of the eighteen seals found in Sumer recently published by Mr. C. J. Gadd, twelve round seals from Ur appear to be of Indus Valley origin;[3] on five of them a bull is surmounted by a row of Indus Valley characters and on one a bull is mating with a cow.[4] As the bosses of some of these round seals are curiously decorated with lines and circles with dots,[5] Mr. Gadd ventures the suggestion, and correctly so, I think, that they were not imported from either Mohenjo-daro or Harappā, but perhaps came from another Indus Valley site. It is extremely probable that slight variations distinguished objects of the same type from the different cities of the Indus Valley.

Seal 626 (Type (b)) has a squarely cut boss at the back instead of a rounded one; and it bears on this boss two signs similar to No. cccv of Smith and Gadd's sign list, except that only one stroke follows instead of two.[6]

The unusually long seal, No. 661, is unique both in the proportion of its length to its width and the fact that on its reverse there is a long tubular boss for suspension along the axis of the seal. This long boss also served to strengthen the seal which would otherwise have easily been broken.

Case-seals.

Seal 95 presents an unusual feature in being hollowed to serve as a receptacle, possibly for an amulet (see also Pl. XC, 11). The space inside measures 0·7 in. long by 0·11 in. wide by 0·63 in. deep, and was made by drilling five holes closely set in a line and then breaking down the material between them. The marks left by these drill-holes are clearly perceptible, for the interior of the seal though fairly smooth is unpolished. Grooved slots along and just inside the upper edges of the interior show that it once had a cover.

[1] The few impressions of these seals that have been found, as distinct from pottery amulets, seem to prove this. For instance, where impressions of square seals are found on pottery vessels, it is the inscription alone that appears and not the animal, though occasionally the head of the animal is seen very faintly.

[2] For examples previously found, see *Mohenjo-daro and the Indus Civilization*, seals 309, 383, 478.

[3] "Seals of Ancient Indian style found at Ur"; *Proc. Brit. Acad.*, vol. XVIII, pp. 1-22.

[4] This particular scene has not yet appeared on either the seals or sealings of Mohenjo-daro; nor does it occur, I think, at Harappā.

[5] I should say here that the boss of seal 500 has the usual groove but is not otherwise ornamented.

[6] *Mohenjo-daro and the Indus Civilization*, pl. CXXVI.

A very similar seal is No. 260 (see also Pl. XC, 9, 10), whose interior measures 0·75×0·12 by 0·75 ins. deep. Here again a drill was first used, and then a chisel to break away the partitions between the drill-holes. This seal is better preserved than No. 95, for each edge of the interior is practically intact and has a V-shaped groove along which the cover once slid, as shown in the illustration. Unfortunately, the case was found without its cover and to illustrate it we have had to make a wooden one. A wedge-shaped hole in the side of this case-seal probably took a thread, which passed out from a minute hole at one end of the opening, to hold the cover in place. As there is no trace of a metal stain, we must assume that a thread was used rather than a wire.

What these two seals once held is a matter for speculation; though I have already suggested that a small copper tablet was placed inside, there is no trace of any metal stains to prove it.[1] A similar hollow case-seal has already been published.[2]

Cylinder Seals.

Seal 78 is cylindrical and somewhat roughly made of a soft, white paste which was originally glazed for traces of pale turquoise-blue still remain in the interstices of the carving. The crossed diagonal lines incised upon this seal are by no means regular—an advantage rather than a fault in a seal since it precluded forgery. The two ends also bear devices and could have been used for impressions: at one end there is a svastika and at the other two or more pictographs which it is impossible to make out.

The calcite cylinder seal, No. 376 (see also D on the same plate), provides another link with Sumer. Unfortunately, owing to the softness of the material used the details are not very clear. Two animals, possibly both antelopes, are represented with their bodies parallel with the long axis and circumference of the seal respectively, the latter looking backwards, as on some of the seals and copper tablets (see Pl. XCIII, 12). I cannot identify the eight-legged creature with pincers that is also shown on this seal. It is difficult to say whether it is intended to represent an insect or not. Strictly speaking, the eight legs would put it into the *arachnid* group, but it is doubtful whether the person who carved this seal would observe such a zoological distinction. In some respects, especially in the shape of the head, this animal is not unlike the central motif of some of the amulets (Pls. LXIX, 23; XCI, 13, 19; CIII, 16), though there the creature, whatever it may be, has a tail and four legs, and may be intended to represent a gharial. Possibly on the seal in question a scorpion is represented, but with the tail accidentally omitted. A somewhat similar creature is depicted on a Hittite seal,[3] and something akin to it on an early sherd from Elam.[4]

The fine cylinder seal, No. 488, is the third of this shape to be found. On it are carved two quadrupeds, each with a short upturned tail and comparatively short horns, which I would identify as goats, though possibly they may represent antelopes. Between them is a bush or tree, and in front of the first animal a

[1] It is possible, judging from the elaborate nature of the grooves for the sliding cover, that the objects contained in these cases were removable at will. Otherwise, a plain sealed cover would have sufficed.

[2] *Op. cit.*, pl. CII, (q).

[3] Legrain, *Culture of the Babylonians*, pl. XXVII, fig. 508.

[4] *Mém. Dél. en Perse*, t. XIII, p. 58.

figure set vertically, which even though it has no limbs may be a gharial as it holds a fish in its mouth. Above each of the beasts there is a bird, but of what genus it is difficult to say as the carving of the seal is somewhat crude.[1] This seal is 1 in. long by 0·59 in. in diameter and is light yellow steatite coated with a smooth white covering.

Five cylinder seals of Indus Valley manufacture have been found up to the present.[2] The first which was unearthed at Susa many years ago is roughly carved from bone;[3] three others are described in this book; and the fifth has quite recently been unearthed by Dr. Frankfort at Tell Asmar, not far from Baghdad, and was first published by him in the "Times".[4] On this last seal is engraved a scene of an elephant and a rhinoceros in file with a gharial above, and the animals show it to be of Indus Valley origin. It is a find of extreme importance owing to the fact that Dr. Frankfort is able from the place in which it was found to date it with certainty to the First Dynasty of Akkad, approximately to between 2,600 and 2,500 B. C. This dating undoubtedly helps us in fixing the chronology of the upper levels of Mohenjo-daro, for no cylinder-seal has yet been found there below the level 14·5 ft. below datum.

The three cylinder seals from Mohenjo-daro are certainly not importations from outside India. They agree only in shape with those of early Sumer and Elam; their devices are quite unlike those on their western prototypes. By reason of their trading connections with both Elam and Sumer, the people of Mohenjo-daro must have known of the cylinder-seal, though they practically never used it, perhaps because the material on which they wrote their documents, did not lend itself to its use.[5] The press-seal remained in favour throughout the life of the city.

It might be pointed out that in Sumer the press-seal was in use before the cylinder-seal, whereas in Egypt the cylinder-seal appeared first to be followed by the press-seal. I have had considerable experience in making impressions with both types of seals; and in my opinion the press-seal is preferable if really sharp impressions are required, though the cylinder-seal is certainly more useful on curved surfaces.

Unfinished and Re-used Seals.

Seal 92 is of especial interest in that, though its face bears a roughly carved inscription, its back which is shown in Pl. XC, 7, is unfinished. Indeed, the marks of the saw used for shaping it are to be seen on every side except the face. Its unfinished condition and the amateurishness of the inscription suggest that this seal was hastily cut for temporary use.

[1] They may be birds that fed on the parasites of oxen. It is quite a common sight in India to-day to see birds thus occupied.

[2] I exclude the incised ivory rods, because they could not have been used as seals. See Pl. CX, 48, 51–3.

[3] *Mém. Dél. en Perse*, t. II, p. 129.

[4] March 26, 1932. Also, *Tell Asmar, Khafaje and Khorsabad*, Orient. Inst., Univ. of Chicago, p. 50, fig. 32. In this list must now be included two seals from Ur, published by C. J. Gadd in *Proc. Brit. Academy*, vol. XVIII, pl. 1, figs. 6, 7. From the peculiar way in which the hump of the ox is carved, No. 6 is most certainly Indus Valley work despite its crudeness in other respects.

[5] No clay documents have yet been found at this site or at Harappā, and it is thought that either leaves or leather, bark or wood were used as a writing-material.

Seal 94 is rectangular in shape, unperforated, and bears an inscription on one side only. Its chief peculiarity lies in the fact that a rough groove was cut round it, presumably with the idea of subsequently using only a portion of the inscription (see also Pl. XC, 6). Possibly this seal came into the possession of a man whose name was written with the first two characters only and he intended to remove the superfluous portion. The seal had already been cut down from an original square stamp seal of Type (b).

No. 356 had also been adapted by roughly removing all but two of the signs, which again may have been the name of the finder. A hole roughly bored through this seal, to be seen at the left hand bottom corner of the impression, is much worn by the rubbing of a cord. It is not unlikely that the second owner of this seal was sufficiently illiterate to have so great a respect for the written word as to use his find as an amulet, and perhaps even to include it among the beads of a necklace.

On seal 96 there is only one roughly incised character in the middle of the face. Its boss, too, is unfinished and has no hole. As the corner of this seal has scaled badly, it is possible that it was thrown out by the seal-maker and subsequently used by someone else.

Seal 319 is also unfinished, though inscribed. In its incomplete condition it is shaped like a three-sided prism, but it would probably finally have taken the shape of Type (f).

Seal 336 originally belonged to Type (f), but a portion of the inscription had evidently been removed and the back (Pl. XC, 12) carefully smoothed over, so that the hole which was formerly in the middle of the seal is now at one end.

When owing to friction the hole through the boss of seal 623 became so enlarged as to break away, another hole was drilled at right angles to it.

Method of Manufacture and Use of Seals.

There is no doubt that after being cut and engraved these seals were treated in some way to produce the white coat that covers them. Mr. Horace Beck after microscopically examining this white coating has come to the conclusion that it is not a slip, but was made by painting the surface with an alkali and then subjecting it to heat.[1] Sometimes this coat shows a certain amount of lamination caused either by the alkali being applied in more than one coat or by the overlapping of brush marks. In some cases it scales off in regular layers, *e.g.*, from seals 71, 140, 271, 310, etc.[2]

I do not think this coating was invariably applied. If the steatite used for the seal was a good white,[3] it would not have been needed ; but when the stone was grey or black, or otherwise impure in colour, a white surface was evidently considered essential for aesthetic reasons (seals 135, 310, 334, 378, 430, 436, 441, 467, 488). Some of the seals are made of a fine black steatite, *e.g.*, Nos. 436 and 467, and these still show in many parts that they were carefully coated with white.

[1] *Liverpool Ann. Arch. and Anthrop.*, vol. XX, pp. 181-2.

[2] It must be remembered that the surface of steatite is very absorbent.

[3] I am inclined to doubt, however, if raw steatite is ever pure white.

Owing to its softness steatite is, of course, subject to wear. It can, however, be hardened by the application of heat, and if the heat applied is great enough to drive off all water, it can even be hardened beyond point 4 of Moh's scale.. But it will not retain this hardness over a long period of time. The edges of these seals, in consequence, suffered considerably, but, strange to say, bevelling was never resorted to as a protection.

The bosses at the backs of seals of Type (b) resemble one another very closely in the method of cutting and shaping, which process has already been described in the first book on Mohenjo-daro. The holes that perforate them always run in the direction of the animal's body so that when suspended on a cord the animal would always assume a normal position. There is a boss of unusual form on seal 19 (Pl. XC, 4) that resembles a plain rounded stud with deep groove round the base; this groove is not intended to take a cord, however, for the usual perforation for the latter has also been provided. The backs of seals 156 and 626 have very roughly made cubical bosses, perforated for a cord but otherwise unfinished; the former is illustrated in Pl. XC, 3. I have already alluded to the long tubular boss at the back of the rectangular seal 661, and the unusual boss of seal 479 which is shown in Pl. C. (C).

Seal 299 has no boss, and the perforation through the body of the seal is blocked up by a piece of copper or bronze wire, which corrosion has caused to swell so that the seal is split. Whether this object was originally the bezel of a ring or a neck ornament, it is difficult to say.

The engraved face of No. 334 is not perfectly plane, but is lowered towards the head of the bull. Two seals found in previous seasons were cut in exactly the same way, but this specimen differs from them in that the whole surface is distinctly curved instead of a portion of the face only.[1]

The long rectangular seals with neither bosses nor other projections (Type (d)) may quite well have been worn on the wrist, as were cylinder-seals in the time of, and probably long before, Sargon the Great, and also in Crete, where seals are sometimes shown even on the wrists of deities.[2] These seals from Mohenjo-daro would lie quite comfortably along the arm with the flat inscribed face against the skin protected from accidental abrasure, whereas the rounded back outside would not catch in anything. It is impossible to say if the square seals (Type (b)) were also carried in this way. Some of them, indeed, are so large that they would certainly have been cumbersome on the wrist or hanging from the neck. In all probability these very large seals were not worn at all, but kept in the house.

Seals Made of Unusual Materials.

Though practically all the seals were made of steatite, generally white, but sometimes grey, dull yellow, or even black, eighteen are made of other materials. For Nos. 17, 37, 73, 78, 236, 374, 383, 586, 600 and 619, a soft paste was used, which was glazed. Seal 376 which is cylindrical is made of calcite, a material which was very commonly used for cylinder-seals in Mesopotamia, though, of course, there is no suggestion that this seal was made in that country. Nos. 1 and 248 are composed of a vitreous paste, a material which though frequently

[1] *Mohenjo-daro and the Indus Civilization*, p. 376.

[2] Evans, *Palace of Minos*, II. pp. 340, 343, fig. 193 (*a*. 1).

used in the making of beads and other objects was very rarely used for seals, for the reason that the nature of the material rendered it incapable of giving the sharp impression necessary for a seal. Nor can this material conveniently be carved when cold and set, for it is brittle and when fired contains many minute gas cavities which would greatly interfere with an engraver's work.

Seal 16, whose obverse and reverse are shown in Pl. XC, 1, and also seal 520 are made of silver and are the only two of this material found at Mohenjo-daro. It is probable that both the figure of the animal and the inscription were cast with the seal and were trimmed up afterwards with a graver. Seal 479 is made of a creamy white marble, a kind of stone that we have not hitherto found at Mohenjo-daro. As both the device on this seal and its material are unusual, there is reason to think that this object is an importation. Seal 658 is made of limestone.

Seal 653 was made of some kind of white composition that looks like finely powdered steatite, and the figure and inscription upon it were moulded and not cut with the result that neither is quite sharp. This seal may have been an experiment.

Arrangement of Animals.

The animals on seals, 8, 135, 279, 330, 510, 512, 520, 547, 644, 673 and 684 face the reverse way from the usual, a departure from the established custom which may perhaps be explained by their being copied from seal-impressions. It should be noted that No. 299 represents the seal itself, which was too fragile to allow of an impression being made; the animal is here, therefore, facing in the usual direction.

Sizes of Seals.

In my chapter on the seals in the first book on Mohenjo-daro, I give a list of sizes which it was hoped would later be found to conform to some definite system of measurement.[1] In 1931, we found a portion of a carefully divided scale which is illustrated in Pls. CVI, 30; CXXV, 1, and is described on pp. 404-5. It is of interest to compare the dimensions of the seals with the unit of the scale which equals 0·265 in. I give below the sizes most favoured amongst the seals :—

0·7 × 0·7-in.	Approx.	2 and 3/5 units.
0·85 × 0·85-in.	,,	3 and 1/5 ,,
1·0 × 1·0-in.	,,	3 and 4/5. ,,
1·05 × 1·05-ins.	,,	4 ,,
1·1 × 1·1-ins.	,,	4 and 1/5 ,,
1·2 × 1·2-ins.	,,	4 and 1/2 ,,

It will be noticed that the above figures are obtainable by subdividing the unit, 0·265 in., into fifths, which is in accord with the decimal basis of the scale. This, I think, it is reasonable to suppose may have been done, though it is conceivable that the unit was quartered. The size of seal most frequently used, however, was 1 × 1 ins. or thereabouts, which gives no very definite multiple of

[1] *Mohenjo-daro and the Indus Civilization*, p. 372.

the unit, and on the whole it seems more probable that the seals were not cut to recognised conventional dimensions. It must be borne in mind, however, that the very thickness of the saw used for cutting up the stone would greatly affect the sizes, especially if the seal-maker were somewhat careless. Also the finishing necessary to remove the saw-marks would remove a certain amount of material. If any strict regard had been paid to size, each seal would have had to be cut slightly larger to allow waste in finishing, but I doubt whether such refinements were observed by the people of the Indus Valley civilization.

Stamped Amulets (Sealings).

The somewhat unusual objects dealt with in this section I have termed 'stamped amulets', but 'seal-impressions' would be an equally good term. Though sealings have been found which were certainly once affixed to matting or a rough textile, it should be understood that only seven of the objects under discussion come into this category. The rest were never attached to bales or anything else, nor did they serve to mark merchandize, as did the sealings of other countries. There is every reason to believe that they were used instead as amulets or charms; indeed, they could hardly have been used for any other purpose, for scenes or pictographs were stamped or moulded on the back as well as the front, save on those seen in Pls. XCII, 4; CI, 10, 13; CII, 14.

The seven exceptions mentioned above, illustrations of which will be found in Pls. XC, 17; CII, 2, 4–6, 8, 11; CIII, 10, were once undoubtedly affixed to matting or wood, as shown by the impressions on their reverse. But these sealings had been burnt, and well burnt at that, which calls for explanation; and the most satisfactory suggestion seems to be that the matting coverings of the bales on which these sealings seem once to have been impressed were eventually disposed of by burning, when the sealings would have dropped. If, as is possible, these objects are not sealings in the strict sense of the word, but amulets like the others, they were perhaps laid on matting to dry and were possibly stamped in that position before being baked.

No. 17 in Pl. XC is certainly a true sealing and it owes its preservation solely to having been slightly burnt; it was once fastened to some such object as a smooth wooden rod.

Compared with the number of seals these amuletic sealings are noticeably rare, possibly for the reason that they would seem to have been carried in a case or pouch on the person, and were, therefore, less likely to be lost. None have yet been found to be perforated, so that they could not have been strung on a cord like the seals.

Practically all are damaged by rubbing; in some cases so badly that it is difficult to make out their subjects. The cause of this rubbing has yet to be definitely ascertained; for being carried in an amulet case would tend to preserve them, unless the case permitted a certain amount of movement or other objects were also kept in it, which would have entailed jostling and friction. No. 15 in Pl. XC, which is pottery, has actually a semi-polished surface, on faces, edges and ends alike, which looks very much as if this amulet had been constantly held in the fingers.

Some of the amulets found were obviously made in the same mould, *e.g.*, Nos. 18, 20, 21, 22 in Pl. XC and No. 21 in Pl. XCI. This duplication is very useful to us, for parts that are indistinct in one may be quite clear in another.

These amulets were made of either faience or pottery, both of which substances lend themselves readily to moulding. The pottery sealings are, however, the best and clearest. No special variety of clay was used for the latter; in fact, many show that mica and even lime—the last is especially noticeable in No. 15 in. Pl. XC—were used as dégraissants, which strongly suggests that ordinary potter's clay was employed. But the clay that burned a grey colour, like that sometimes used for pottery, was never used. One, therefore, cannot assume that these amulets were made of sacred earth like the little stamped clay cakes sold to pilgrims at various shrines in the East at the present day.

The bodies employed in making the faience amulets were :—

(*a*) A granular grey substance of a very porous nature that resembles powdered steatite, but has another very finely granulated material mixed with it that looks like quartz. This latter is not a natural sand, but may be a sand that had been crushed, for the particles are irregular. Nos. 1, 4, 6, and possibly No. 5 in Pl. XCII, are made of this material. Nos. 16 and 19 in Pl. XC and No. 12 in Pl. CII are also made of this grey substance but are coated with a yellow deposit which is possibly the remains of a glaze whose surface has entirely disappeared.

(*b*) An equally soft glazed paste which is definitely yellow all through. When viewed under a microscope, this paste appears to be a mixture of crushed sand or quartz with a yellow substance which may have been used as a binding material and possibly is a clay. The proportion of these two substances is about half and half. No. 1 in Pl. XCI, Nos. 2, 3, and 10 in Pl. XCII, and No. 9 in Pl. CII were made of this yellow paste coated with a somewhat blobby glaze, which is now turquoise-blue but originally may have been a darker tint. No. 5 in Pl. CI and No. 3 in Pl. CII were also made of a yellow paste, but they show no trace of ever having been glazed. It is possible, however, that the glaze has entirely scaled off through the action of salt.[1]

The pottery amulets were all moderately baked and are a light pink colour. Some show traces of having been entirely coated with a red slip, which in the case of No. 12 in Pl. XCII was very dark. This amulet was also purposely twisted to an angle of about 25°, and No. 23 in Pl. XCI very much more so.[2] No. 6 in Pl. CI, of rod-like form, was intentionally curved like a bow. At first sight this twisting might be thought to be accidental, but we have found too many examples for this to be so.

The amulets that bear the same designs are sometimes curiously localized. For instance, the scenes on those found in the G Section of the DK Area do not resemble those from other parts of the same area. It is perhaps too early to be dogmatic on this point, but up to the present the evidence tends to show that the people living in certain quarters of the city favoured certain kinds of amulets, that are not found, or at any rate have not yet been found, in other districts. This can, perhaps, be explained by supposing the amulets found in any one

[1] No. 1 in Pl. XCI shows traces here and there of a violet glaze. This colour is due to manganese and it does not seem to have been as stable as the ordinary blue or green.

[2] No. 4 in Pl. CI was also twisted very considerably.

quarter to be mementos, with amuletic properties, of visits to the shrine or temple of that quarter.[1]

DESCRIPTION OF AMULETS.

Upper Levels.

Plate LXXXII.—Nos. 1 and 2 (SD 3089). Pottery; no slip. 2·7 × 0·5 × 0·5 ins. Three-sided prism.

This amulet is fairly clear and not so rubbed as are the majority of those found at Mohenjo-daro. To obtain satisfactory illustrations casts were taken of the three sides; the scenes are therefore reversed in the photographs, whereas the line drawings represent them as they actually are. It is from the line drawings that they are described.

(*a*) On the extreme right is an animal with its tail carried straight up in the air, which makes it reasonably certain that here is once more represented the composite animal of seals 411, 450, 521 and 636. On the left of this creature, a human being in a tree is watched by a tiger, a scene which is now familiar to us. Beyond again is a framed svastika, and on the extreme left is an elephant.

(*b*) A urus-like animal facing right, with the usual cult standard in front of it, is followed by a row of eight pictographs.

(*c*) At the extreme right, a horned figure with arms adorned with bracelets stands between two trees, whose leaves resemble those of the *pipal*. On the left of this scene is a sacred goat decorated with garlands, which recalls another tree scene in which this animal appears [Pl. XCIX, (A)]. Beyond, a kneeling horned deity, apparently a goddess, for a long pigtail is worn similar to those of the figures on seals 347, 430, holds out both hands as if in supplication. At the extreme left is a little offering-table, upon which stands something not unlike a bird.

It seems that the tree-spirit, which, it should be noted, wears identically the same head-dress as that of the kneeling goddess,[2] stands between two separate trees, though each has leaves only on one side. This latter fact may, however, be accounted for by the confusion that foliage on both sides of their trunks would have created with the figure between them. If this surmise be correct, this little scene helps us in the interpretation of the scene on the amulet in Pl. XC, 23. Here two men carry each a tree with its roots showing, which may have been torn from the ground. On the contrary, they may be about to plant their trees for the abode of a spirit.[3] On this amulet there even appear to be heaps of earth around the foot of each tree, which certainly suggests that they had been newly planted, an occasion on which prayer and the table of offerings, and perhaps also a sacrificial goat, would be appropriate. Locus: SD Area, Bl. 8, rm. 10. Level: + 1·9 ft.

[1] With the exception of the buildings containing the Great Bath, we have not yet cleared any building that can definitely be identified as religious in character. The ground-plan of temple or shrine may have been very simple and not easily distinguishable from that of an ordinary house.

[2] The same head-dress is worn by the seated deities on seals 222, 235.

[3] The planting of a sacred tree, especially the Banyan (*Ficus Indica*), is at the present day in India regarded as a meritorious act; Martin, *The Gods of India*, p. 236.

Plate XC.—No. 13 (DK 11583). Baked clay ; no slip. 1·45 × 0·54 × 0·45 ins. Rectangular in section with inscriptions and scenes on all four sides. Pressed somewhat out of shape. On one side (*a*), a man is seated in a tree with a cat-like animal looking back over its shoulder at him, a scene with which we are now well acquainted as it occurs repeatedly on both seals and sealings (see also No. 23 b in the same plate). On the opposite side (*b*), a row of animals in file though very rubbed can be identified as a rhinoceros, an elephant, and a urus bull. Above them on the left is a gharial, or fish-eating crocodile, with a fish in its jaws, and on the right there appears to be a bird. A third and narrower side (*c*) is far the most interesting, and though it is very badly abraded certain details are fairly clear. On the left is a tree beneath which is a small truncated pyramid-like object, perhaps a shrine, surmounted by a standard, the details of which are very difficult to make out. A goat-like animal with long horns and short up-turned tail stands on each side of the pyramid with its fore legs resting on its top.[1] Hanging from the branches of the tree are a number of objects that may represent either leaves or fruit, though the seemingly sacred character of the shrine-like structure beneath the tree is suggestive of offerings.[2] In the middle of this side a kneeling man holds in both hands what may be a small sapling that he is about to plant, while a woman standing before him bends down with what is perhaps a basket in her hands. Behind the woman is a badly weathered device of which only the lower portion remains, that appears to be the same as the figure on the left of the tiger in No. 23 b of the same plate. Further to the right are some very indefinite details, one of which I suggest is a dancing figure. If this be so, the middle and right-hand of this scene may depict some religious rite, but it would be idle to speculate on its interpretation until a better preserved example has been found. The fourth side is so badly rubbed that of the scene upon it practically nothing remains, save the legs of two standing figures and the body of an animal. It is a pity that on so interesting an amulet the most important portions should have suffered most. Locus : Bl. 16, ho. II, rm. 13. Level : — 3·9 ft.

No. 14 (DK 10272). (*Cf.* Nos. 21 and 22 in the same plate). An enlarged photograph of what is now a well known type of faience amulet ; actual size 1·22 × 0·42 × 0·27 ins. Porous, gritty-looking, yellow paste which has lost all traces of the original glaze. Rectangular, with a flat face and rounded back.

On the obverse of this amulet, there are two pictographic characters with a design to the left of them consisting of a St. Andrew's cross, of which each limb is itself a Latin cross. The arms of the latter are parallel to the arms of the main cross. This design was in itself no doubt thought to have some amuletic power, though we do not yet know in what respect. It is carefully outlined all round.[3]

[1] The attitude of these animals is quite Sumerian in feeling.

[2] It is quite common in most parts of India to see clothing, rags, etc., hung in a tree as an offering to the spirit which is supposed to dwell therein. Nor is this custom confined to India. The *pipal* tree is especially revered, women making vows to it for the boon of male offspring, and registering these vows by tying rags to its lower branches. Martin also states that a vessel of water for the comfort of a departing soul on its way to the land of the dead is hung from its branches ; *Gods of India*, p. 235.

[3] This may be observed in most of the cross designs of Sumer, Elam and Sindh.

The rounded back of this amulet is somewhat strange, for it is divided into six raised segments with a curious projection at one end. It looks for all the world like a bundle tied tightly round at intervals, and for this reason I would suggest that it represents an amulet case of cloth or leather divided into compartments, each perhaps intended to hold its own particular object. That amulet cases tend in their turn to become actual amulets is proved, I think, by the occurrence at Mohenjo-daro of certain baked clay medallions, intended to be worn on a cord, that from the markings round the edge are clearly copies of stitched leather cases (Pls. LXXI, 14; CXXXVI, 80; CXL, 34; CXLII, 1, 2, 4).[1] Locus: Bl. 18, rm. 55. Level: – 5 ft.[2]

No. 15 (DK 12809). (*Cf.* No. 21 in Pl. XCI). Pottery; no slip. 1·62 × 0·5 × 0·29 ins. Rectangular in section and slightly warped. Polished in places by much handling or by being carried in a loosely fitting case. On one side (*a*), there is an animal with two pictographs to the left of it; on the opposite side (*b*), four plain pictographs. The remaining sides and the ends are plain. Locus: Surface.

No. 16 (DK 11286). 0·85 × 0·85 × 0·85 ins. This cubical object was made of a light-grey, gritty-looking paste which seems formerly to have been glazed, though its surface is now bright yellow with no trace of a coating upon it. On two opposite sides there are crossed lines, as in No. 19 in the same plate. The remaining four sides bear in relief a rhinoceros, a short-horned bull, an antelope looking backwards, and the urus bull; and above each animal there are a few signs which owing to rubbing can no longer be identified. These cubical objects may have been used as seals and amulets combined, for the cross-hatching which always occurs on two of the opposite sides could well be used for sealing; indeed this simple device is frequently found on archaic seals of Sumer and Assyria.[3] The animals in relief appear to have been impressed by four different seals, mostly so carelessly as to make the cube irregular in shape. Like the pottery amulets, cubes of this type invariably show evidence of hard wear.[4] Locus: Bl. 18, rm. 72. Level: – 6·9 ft.

No. 17 (DK 12145). Unbaked clay. 1·34 × 0·96 ins. This is a true clay sealing and owes its preservation to the fact that it was accidentally burnt—very slightly, but enough to preserve it. It appears to have been wrapped about a smooth round rod, which from the striations on the interior of the sealing seems to have been made of wood (*b*). On the inside of the sealing there are also some markings which look remarkably like pictographic signs (*c*), though, unfortunately but little remains of them owing to the breaking of the sealing. Possibly this object is part of an envelope that once enclosed a private message, in the same way as the clay envelopes of the tablets so well known to us in Babylonia. If, however, an inscription had been incised upon the wooden rod, the characters upon the sealing should have been in relief, whereas they are the opposite. There is, however, the possibility that the original writing, if writing it be, was in some thick ink which stood out enough to impress itself upon the reverse side of the

[1] For other examples of stylized amulet cases, see Mr. A. Murray, *Ancient Egypt*, Sept. 1930, pp. 65-73.

[2] Exactly similar amulets have been found at the following levels:— DK 7996, – 12 ft.; DK 5669, – 14·8 ft.; DK 6707, – 16·3 ft.

[3] Mallowan and Rose, *Prehistoric Assyria*, pl. VI, pp. 90, 91, fig. 50.

[4] A similar object has been found at the level – 15·5 ft. (DK 6035), and another at – 16·8 ft. (DK 8344). See also *Mohenjo-daro and the Indus Civilization*, pl. CXIV, 524–6, 528.

sealing. The seal-impression on the face of this object was apparently made with an ordinary seal and stamped twice at least. Locus : Bl. 23, ho. I, rm. 5. Level : — 3·6 ft.

No. 18 (DK 12270). (*Cf.* No. 20). Faience, with some traces of the original green glaze. 0·99 × 0·4 × 0·18 ins. A rectangular plaque very carefully made and well finished, inscribed in relief on both sides. On one face, there is a single device, seen more clearly in No. 20a, a sign resembling the double-axe motif which sometimes appears amongst the pictographs on the seals.[1] On the reverse are four characters, all of which are well known to us. Locus : Bl. 20, ho. II, rm. 9. Level : — 10·9 ft.

No. 19 (DK 12290). A similar object to No. 16, made of the same material and about the same size. Locus : Bl. 18, rm. 9. Level : – 8·8 ft.

No. 20 (DK 11429). This little amulet was made in the same mould as No. 18 and accordingly resembles it in every way, except that it is better preserved. Locus : Bl. 16, bet. rms. 4 and 7. Level : — 6·2 ft.

No. 21 (DK 11002) and No. 22 (DK 12238). These two amulets should be compared with the enlarged photograph (No. 14) which has already been described ; all three were evidently made in the same mould. Loci : Bl. 18, rm. 35 ; Bl. 18, rm. 22. Levels : — 6·2 ft. and — 8·5 ft., respectively.

No. 23 (DK 10237) is an enlarged photograph of one of the most interesting amulets that has been found, which is, moreover, very well preserved so that we have no difficulty in making out the scenes depicted upon it. No. 24 in the same plate is the same object, slightly enlarged. Pottery ; no slip. 1·52 × 0·45 × 0·27 ins. Rectangular in shape and very slightly twisted.

The sides seem to have been impressed in separate moulds and the two strips united, so that a mark was left along each edge of the amulet. One side (*a*) bears an elaborate interlaced motif which is new to us, and of which I can find no record elsewhere, though in its complexity it might perhaps be compared with the device on a seal of Lugal-anda, patesi of Lagash.[2] Twists, whether angular or curvilinear, are somewhat rarely found in the art of the Indus Valley people, though a very excellent example of a curvilinear twist is seen in Pl. XCIII, 4, of this book, and an angular one has lately been found on a four-sided bead from another area of Mohenjo-daro.[3] These twisted designs were common in early Sumer and there is the possibility that they were introduced into India from that country. That they were regarded as having some sort of talismanic value seems certain. In the middle of this side (*a*) is a group of pictographic signs, all of which are readily recognisable, and on the left a kneeling figure holds some tong-like object before a tree.

The other side of the tablet (*b*) is also of great interest. The object on the left is very similar in shape to a type of pottery vessel not uncommon at Mohenjo-daro (see Pl. LVI, 22–7), which is invariably carefully made and was also the shape most favoured for decoration in polychrome.[4] This type of jar has also been found in beaten silver fitted with a lid[5] not at all unlike that seen on the clay representation under discussion, save that the latter has no knob. Copper

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXXIII, cxxxix.

[2] King, *History of Sumer and Akkad*, pp. 174-6.

[3] Pl. LXXXII, 3.

[4] *Mohenjo-daro and the Indus Civilization*, pl. LXXXVII, 2.

[5] *Op. cit.*, pl. CXLVIII, (B).

vessels of the same shape also occur (Pl. CXIV, 12, of the present book); and it, therefore, seems possible that this particular type of vessel had some place in ritual.[1]

Next to this vessel is the well known scene of a man in a tree with a tiger apparently walking away but at the same time taking a last look at his hoped-for prey in tantalising security, though this would certainly not have been the case had the beast been as large in proportion to the tree as it is represented! Hitherto it has been thought that this particular scene was an attempt at humour, but taken in connection with the obviously religious subject to the right of it, it seems more probable that it is allegorical. It is certain that the animal in all these scenes is a tiger and not a lion; though the stripes are lacking in this particular example they are clearly seen elsewhere.[2]

Further to the right are two human figures, either tearing a tree apart to release a tree-spirit or about to plant two trees for the benefit of the tree-deity, whose extended arms suggest that the work is being blessed. The apparently leafy nature of the arms of this spirit is not, I believe, to be associated with branches; on a seal illustrated in Pl. LXXXVII, 235, bracelets are represented in exactly the same way. Personally, I am not inclined to regard this scene as representing the marriage of two trees, a ceremony which is common in many parts of India at the present day, the trees, of course, being of two different species. The details on this clay tablet are not sufficiently fine to allow of a definite statement that the trees shown are of two different kinds.

A comparison may, perhaps, be made between this scene and the tale of Nalakūbara and Manigriva, sons of Kubera, who according to the Bhāgavata were metamorphosed through a curse of Nārada into two Arjuna trees, but were liberated by Krishna who pulled the trees down.[3] This legend may conceivably be a survival of a much older one.[4]

We have now found three tablets with the above described interesting scenes; and all come from one particular part of the DK Area. The tablet illustrated was found in Bl. 15, ho. II, rm. 12. Level: $-2 \cdot 2$ ft.

Plate XCI, No. 1 (DK 7905). Yellow paste. $0 \cdot 65 \times 0 \cdot 65 \times 0 \cdot 1$ ins. This square amulet, typical of many found in various parts of Mohenjo-daro, has a perforated boss at the back to suspend it on a cord. On the face there is a svastika within a square frame with a line projecting inwards from the middle of all four sides.[5] In the depression of the design there are traces of a violet glaze, which was probably coloured with manganese. As stated in the former book on Mohenjo-daro, it has been suggested that these particular objects were used for marking the face or body, for which they would be well adapted. Locus: Bl. 9, ho. VII, rm. 21. Level: $-5 \cdot 8$ ft.

Nos. 2-10 will be referred to in the description of Pl. XCII.

[1] In use this jar may perhaps be associated with the differently-shaped *Hes* vase, the sacred libation jar in use in Egypt from a very early period, made in both pottery and metal.

[2] *Mohenjo-daro and the Indus Civilization*, pl. CXI, seals 353 355.

[3] Wilson, *The Vishnu Purāna*, vol. IV, p. 281, n. 1.

[4] This act of Krishna which is by no means commonly depicted is seen on a stone slab found by Mr. K. N. Dikshit at Paharpur, dated to the VIth cent. A. D.; *Ann. Rep. Arch. Surv. Ind.* (1926-7), pl. XXXII(*b*).

[5] For two exactly similar patterns but of considerably later date, see Petrie, *Decorative Patterns of the Ancient World*, pl. LXIX, E. 2; E. 7.

No. 11 (DK 4266). Baked clay. 1·85 × 1·75 × 0·55 ins. This object is somewhat roughly made and out of shape. It may be a trial impression of a seal; it is unperforated and its back is quite plain. As will be seen, it bears a motif that is commonly found on the seals and is in itself of little interest. Locus: Bl. 2, ho. I, rm. 8. Level: — 9·7 ft.

Nos. 12-20 are described amongst the objects pictured in Pl. XCII.

No. 21 (DK 12732). Light pink pottery, which seems at one time to have been coated with a dark, chocolate-coloured slip. 1·56 × 0·45 × 0·21 ins. This amulet which was made in a mould has the same pictographs and animal in relief on obverse and reverse. It is comparable with No. 15 in Pl. XC, but it does not seem that the same seal was used for impressing both. Locus: Bl. 9, ho. XII, rm. 90. Level: — 10·6 ft.

No. 22 (DK 12257). Pinkish clay, formerly coated with a smooth slip of a slightly darker colour. 0·99 × 0·85 × 0·29 ins. Irregular in shape, with the back plain. This does not seem to have been a trial impression of a seal, otherwise it would hardly have been coated with a slip; nor had it ever been used as a sealing, for its back and sides bear no impression at all. Hence it is probable that it was an amulet and was carried in a case. Locus: First Street, east of Bl. 6, rm. 42. Level: — 8·7 ft.

Nos. 23 and 24 (DK 10701). Light red pottery; once coated with a smooth light red slip. 2·02 × 0·45 × 0·39 ins. This amulet, like No. 24 in Pl. XC, was made by fastening together two strips of clay, each of which had had one of its faces impressed in a mould. When the edges had been smoothed over, the amulet was twisted to an angle of over 90°. On one side of this amulet, three men, who for lack of perspective are shown in file, are bending their bows to shoot a large antelope whose long horns extend straight back over the body. Two heavily feathered arrows have already found their mark in the fore-quarters of the animal. This is the first scene of its kind to be found at Mohenjo-daro and it is unfortunate that it should be so badly rubbed. On the reverse, there is a row of pictographs that also have been practically obliterated by constant rubbing. The twist of this amulet makes it practically impossible to photograph it in the usual way. Locus: Bl. 9, ho. XII, rm. 90. Level: — 5·3 ft.

Plate XCII.—Nos. 1a, 1b (DK 3687) (see also Pl. XCI, 12). Faience; a soft grey substance resembling powdered steatite, covered with a thin and somewhat blobby glaze which seems to have been overfired. The colour is light apple-green, but may once have been a darker tint. 0·7 × 0·6 × 0·2 ins. Originally rectangular in shape, but a portion is now missing.

On one side (*b*) is a sign now very familiar to us as it appears repeatedly on the seals. The other side (*a*) which is rather indistinct is of great value, for it shows a number of figures engaged in a dance, and one figure, I think, is beating a drum. On the right of the scene and vertically arranged is an endless cord pattern not unlike the guilloche that appears on many Sumerian and Syro-Cappadocian seals.[1] There was apparently no hole through this object, and if, as I believe, it was worn as an amulet it must have been kept in a case. Locus: Bl. 9, ho. VII, rm. 16. Level: — 5·9 ft.

[1] Delaporte, *Catalogue des Cylindres Orientaux*, pl. 95, fig. 21; pl. 96, fig. 10, etc.; Ward, *Seal Cylinders of Western Asia*, p. 183.

Nos. 2a, 2b (DK 4790) (*cf.* Pl. XCI, 19). Faience; a light yellow, very porous paste formerly coated with a turquoise-blue glaze. 0·9 × 0·8 × 0·3 ins. Somewhat out of shape. Owing to the rubbed and worn condition of this amulet, it can best be studied by reference to No. 10 on the same plate, which is in better condition.

On one side (*a*) there is an animal in the centre with a long tail and four legs, which I would identify as a gharial.[1] On either side of this animal's head, there is a bull facing it with head lowered as if about to charge (*cf.* No. 11*a* on the same plate). The horns of the bulls being in close contact with the head of the central animal, they are likely to be confused at first sight with the latter. There is an indistinct sign above each bull. Below, an elephant faces to the right, and opposite to it a feline animal, probably a tiger, looks backwards. The reverse of this amulet is in very bad condition. It shows three animals which I think are tigers, tied together at their middles. Fortunately, a seal has already been found in a former season with a very similar motif clearly defined: it is illustrated in the earlier book.[2] To fill up gaps here and there round this last motif various pictographs were inserted.

This curious triquetrous design is exceedingly rare in the art of the Indus Valley; nor do I know of its occurrence in Sumer. Lobed or scroll-armed devices frequently occur on Minoan seals and painted ware, and also on Mycenaean disks, the former examples belonging chiefly to the Middle Minoan Period.[3] I am not, however, aware that animals enter into this form of ornament elsewhere than in our two Indian examples, except at a comparatively late period, as for instance, the triskelion of three cock's heads on the coins of Lycia.[4] The arms of the Isle of Man are a more modern example. Locus: Bl. 11, ho. II, rm. 12. Level: — 7·4 ft.

Nos. 3a, 3b (DK 8149) (see also Pl. XCI, 6). Faience; light yellow with traces of green glaze. 0·69×0·39×0·2 ins. A rectangular tablet with three pictographic signs on one side, and on the other the urus bull and cult object that so frequently appear on the seals. Locus: Bl. 11, ho. III, rm. 34. Level: — 9·7 ft.

Nos. 4a, 4b (DK 4979) (see also Pl. XCI, 16). Faience with a grey gritty core, coated with a glaze whose original colour has faded to a creamy tint. 0·78 in. wide by 0·25 in. thick. The edge of this amulet was painted black, presumably with manganese. One side (*b*) is perfectly plain; on the other there are two pictographic signs. Locus: Bl. 3, ho. V, rm. 7. Level: — 10·9 ft.

No. 5 (DK 7892) (see also Pl. XCI, 3). Faience; a grey porous body coated with a yellow substance which may be a decayed glaze. 1·1 × 0·41 × 2·2 ins. A rectangular plaque. On one side is a row of signs, and on the other a cross set in a frame, a motif which is sometimes found in shell inlay at Mohenjo-daro,[5]

[1] For a representation on a seal, see LXXXV, 133.

[2] *Mohenjo-daro and the Indus Civilization*, pl. CXII, 386.

[3] Evans, *Palace of Minos*, II, pp. 197, 277, 491, etc. See especially Evans' remarks on its relation to Celtic art, p. 198.

[4] Petrie, *Decorative Patterns of the Ancient World*, pl. VII, but also see Woolley, *The Development of Sumerian Art*, pl. 68, pp. 54, 124. Certain seals of the Jemdet Nasr Period bear a tetraskelion motif which may be the prototype of the Indian device; an independent origin is hardly likely.

[5] *Mohenjo-daro and the Indus Civilization*, pl. CLV, 34.

and is also known in Elam and other places,[1] with the difference that the arms of the Elamite and other symbols are all the same length, whereas the Indus Valley cross most frequently has arms of unequal length. Locus : Bl. 7, ho. II, rm. 29. Level : — 6·3 ft.

No. 6 (DK 3650) (see also Pl. XCI, 15). Faience; a grey body with traces of an apple-green glaze. 1·2 × 0·49 × 0·35 ins. A rectangular plaque with slightly rounded edges. One side (*a*) bears five pictographs, and the other (*b*) is scored with a row of lines unequally spaced and roughly framed in a simple border. Locus : Bl. 7, ho. IX, rm. 33. Level : — 9·6 ft.

No. 7 (DK 8058). A duplicate of No. 5, and made of the same material. Locus : Bl. 8, ho. I, rm. 8. Level : — 9·6 ft.

No. 8 (DK 7909) (see also Pl. XCI, 2). Baked clay ; light pink. 1·15×0·5×0·3 ins. Rectangular, with rubbed edges. One side of this amulet is blank ; the other bears five pictographic signs which with the exception of the first are impossible to make out owing to wear. The first sign is of importance in that it represents the cult object that is always shown in front of the urus bull on the seals. This is the first time at Mohenjo-daro that I have seen this symbol apart from the animal, except where it appears amongst the standards carried in a procession on two amulets found prior to 1927.[2] Locus : Bl. 8, ho. II, rm. 22. Level : — 5·6 ft.

No. 9 (DK 8107) (see also Pl. XCI, 7). Baked clay ; pink. 0·6 in. wide by 0·32 in. thick. A rectangular plaque with a portion missing. Owing to this amulet being very much rubbed, little of its two subjects can be made out. There was apparently a row of characters on one side, and on the other a bull or rhinoceros stands beneath a tree (?) whose trunk is just in front of him. Locus : Bl. 9, ho. VII, rm. 20. Level : — 8 ft.

No. 10 (DK 5082) (see also Pl. XCI, 19). Faience; a yellow paste formerly coated with turquoise-blue glaze, traces of which remain here and there. 0·9 × 0·9 × 0·21 ins. A square plaque. This amulet is similar to No. 2 on the plate, but is in a better state of preservation. It appears to have been made in the same mould. Locus : Bl. 9, ho. VII, rm. 17. Level : — 11·5 ft.

Exactly the same scenes, but with additions, appear on a square pottery plaque, illustrated in Pl. LXIX, 23, that was found at — 18·3 ft. The arrangement of the animals is the same as on the two tablets already described, but in the middle there also appear a rhinoceros and a monkey-like figure holding something in its hand. In the lower register there are two human figures which are not to be seen on the other amulets.

No. 11 (DK 8120) (see also Pl. XCI, 20). Drab-coloured pottery ; formerly covered all over with a red slip. 1·6 × 0·45 ins. each side. A three-sided prism, with all the sides badly rubbed. On one (*a*), two short-horned bulls are fighting, and there are two pictographs behind the right-hand bull. On another (*b*), a buffalo with its head down has attacked a man who has a foot on its head, while with one hand he holds a horn and with the other a spear which he is about to

[1] *Cf.* the primitive seals from Elam in *Mém. Dél. en Perse,* t. VIII, p. 10, fig. 20, and t. XVI, pl. XXI, fig. 314. A framed cross is a pictograph in the Minoan script : Evans, *Palace of Minos*, I, pp. 515-6. And exactly the same motif is to be seen on pottery bowls of the civilization known as Mimbrenos of New Mexico, said to date between 2,000 B. C. and 600 A. D.

[2] *Mohenjo-daro and the Indus Civilization*, pl. CXVIII, 9. Amulets from Harappā frequently depict this object alone or with a man supporting it ; *Op. cit.*, Pl. XIII, 18, 19.

thrust into the beast. Behind the buffalo and facing the same way is a cobra with its hood expanded and ready to strike. A somewhat similar scene appears on a seal, No. 279, in Pl. LXXXVIII. On the third side (*c*) is embossed a row of five pictographs. The two fighting bulls would be a familiar scene to cattle-breeders,[1] but the buffalo attacking a man is not quite so common an event and the scene may perhaps record the feat of a hero or deity who took part in such a battle. The buffalo, as we have seen, frequently appears upon the seals, but whether it was a sacred animal or not is as yet uncertain. Like the short-horned bull, it is always represented in a belligerent attitude which suggests that it was not the domesticated beast.[2] Locus : Bl. 9, ho. IV, rm. 2. Level: – 9·4 ft.

No. 12 (DK 4547) (see also Pl. XCI, 4). Light red pottery ; dark red slip. Each side, 1·68 ins. long by 0·45 in. wide. Three-sided prism. This amulet was purposely twisted to an angle of nearly 90°, and, in consequence, the scenes shown upon it, though clearer than on most amulets, were extremely difficult to photograph.

On one side (*a*), reading from the right, a buffalo has attacked a man who is seen, as on No. 11, with one foot and a hand upon its horns. With the other hand the man is stabbing the animal's shoulders with a spear. Behind the buffalo is a tree with a human figure close to and touching it, beyond whom are two other human figures. On the extreme left are two pictographic characters, one of which seems to be a *pipal* leaf.

The second side of this prism (*b*), reading from the left, bears the same two pictographic characters, beyond which a goat standing on its hind legs is eating from a tree.[3] Further to the right again is an animal with three heads, one of which is certainly an urus head, the second possibly that of a rhinoceros, and the third and topmost definitely that of a short-horned bull.[4]

On the third side (*c*), reading from the left, the two pictographic characters occur yet again. The central figure has been so badly rubbed that it is impossible to identify it. The two curious objects to its right look to me like feet or footprints ; the upper one has five projections which may represent toes. They may, however, represent flat, straw sandals. It is to be regretted that such an interesting amulet should be so badly rubbed, and we must hope that another more perfect specimen will one day come to light. Locus: Bl. 9, ho. VII, rm. 31. Level: – 6·6 ft.

Lower Levels.

Plate CI.—No. 1 (DK 7661) (see also Pl. CIII, 13). Baked clay ; drab-coloured, with a slip. 1·3 × 0·52 × 0·3 ins. Rectangular in section with scenes on two sides. End missing. On one side is a short-horned bull with a manger before him, in front of which stands a human figure with one arm raised and apparently pointing to an object which frequently appears amongst the pictographic signs. On the reverse are a rhinoceros and tiger in file. Locus : Bl. 9, ho. VIII, rm. 16. Level: – 19·4 ft.

1 For a very similar scene, see an axe-head dated to the Eighteenth Dynasty of Egypt ; *Liverpool Ann. Anthrop. and Arch.*, vol. XVI, pts. 3, 4.

2 The domestic buffalo has quite a mild disposition and is easily controlled by the smallest child.

3 There is quite a Sumerian touch about this middle scene.

4 A seal with a very similar scene is reproduced in *Mohenjo-daro and the Indus Civilization*, pl. CXII, 382. See also pl. LXXXIII, 24, of this book.

No. 2 (DK 9274) (see No. 3 in same plate). Pottery ; cream slip (?). 1·46 ins. long, with sides averaging 0·48 in. wide. Three-sided prism. On one side (*a*) are two female figures with arms upraised, one of them with a very attenuated waist. To the right is an object which is not clearly distinguishable. The female figures may possibly be dancing, and their short squat legs recall those of the pottery figures in Pl. LXXV, 13; LXXVI, 11. On the other side (*b*), a gharial pursues a school of fish, and above the crocodile is a river turtle. Side (*c*) bears a row of pictographs. Locus: Bl. 1, ho. VII, rm. 37. Level: − 16·1 ft.

No. 3 (DK 7846) (see No. 2 in same plate). Drab-coloured pottery ; cream slip. 1·59 ins. long with sides 0·51 in. wide. Three-sided prism, which appears to have been made in the same mould as No. 2. Locus : Bl. 7, ho. V, rm. 54. Level: − 18·1 ft.

No. 4 (DK 9073). Pottery ; traces of red slip. 1·6 × 0·4 × 0·29 ins. Rectangular in section. This amulet has been very badly rubbed, especially on the side bearing a row of pictographs. On the other side are two rhinoceroses with three pictographic signs between them. This object was purposely twisted in the same manner as No. 23 in Pl. XCI. Locus: Bl. 1, ho. VII, rm. 35. Level: − 17 ft.

No. 5 (DK 6393). Faience; yellow, sandy-looking paste with no trace left of glaze. 0·8×0·55×0·29 ins. Rectangular in section, one end missing. One side uninscribed ; on the other, three very faint pictographic characters. Locus : Bl. 7, ho. I, rm. 14. Level: − 13·1 ft.

No. 6 (DK 8285). Pottery ; no slip. 1·2 ins. long by 0·31 in. in diameter. This very curious, rod-like amulet has a slight ridge along each side left by a double mould. It is very badly rubbed, and in places the details are far from clear. On one side (*a*), a kneeling figure holds in its hands a similar object to that held by the man at the right hand end of Pl. XC, 24 (*a*), which he is evidently offering to a tree deity. Beyond the tree, there is a row of characters. The reverse side (*b*) shows a serpent (cobra) partly reclining on a low platform or dais, a tree, and two pictographic signs. A standard may perhaps be represented at the extreme left, but this is uncertain. There is no doubt that the serpent in this scene was regarded as sacred, and offerings, such as milk, may have been placed upon the table on which it partly rests, as in India at the present day. Locus : Bl. 7, ho. IV, rm. 71. Level: − 16·2 ft.

No. 7 (DK 6417). Pottery ; red slip. 24 ins. long, with sides averaging 0·36 in. wide. Three-sided prism ; somewhat irregularly shaped. There are pictographs on all three sides, some of which are very faint. Locus ; Fore Lane, bet. Bls. 1 (Palace) and 10 (I). Level: − 16·7 ft.

No. 8 (DK 3949). Faience ; with traces of green glaze. 1·1 × 0·49 × 0·25 ins. Rectangular in section ; one end missing. On one side of this badly weathered plaque there is a row of pictographs ; on the other, some square motifs which are by no means clear. Locus : Bl. 3, ho. VI, rm. 30. Level: − 13·3 ft.

No. 9 (DK 7832). Pottery ; red slip. 1·7 × 0·5 × 0·24 ins. Rectangular in section. Both sides of this amulet bear the same motifs, namely an animal which is too rubbed to identify and two signs which are quite clear. Locus: Long Lane, bet. Bls. 10A and 11. Level: − 23 ft.

No. 10 (DK 8520). Pottery; no slip. 1·63 × 0·55 × 0·25 ins. Rectangular in section. Very worn. One side plain; on the other, an animal which may be a bull. Locus: First Street (21). Level: – 20·8 ft.

No. 11 (DK 8358). Pottery; no slip. 1·5 × 0·7 × 0·22 ins. A row of pictographs on one side; the impression of a square seal on the other. The animal appears to be a goat with twisted horizontal horns. Locus: Bl. 7, ho. I, rm. 3. Level: – 18·9 ft.

No. 12 (DK 9338). Pottery; dark red slip. 1·16 ins. long, with sides averaging 0·37 in. wide. Three-sided prism. There is an animal on each side, namely, (*a*) urus bull, (*b*) short-horned bull, (*c*) tiger, and in front of each a row of pictographs. Locus: Bl. 3, ho. I, rm. 5. Level: – 19 ft.

No. 13 (DK 6420). Pottery; cream slip. 1·52 ins. in diameter by 0·54 in. thick. The rounded back of this object is quite blank and gives the impression of having been made in a mould. The animal on the obverse is a urus with the usual cult object before it. Locus: Bl. 4, rm. 15. Level: – 20·6 ft.

No. 14 (DK 5770). Pottery; red slip. 1·04 × 0·66 × 0·21 ins. Rectangular; one end missing. On one side of this amulet there is a rhinoceros, and on the other the forequarters of the same animal with two bracketed signs before it. Locus: Bl. 1 (Palace), eastern court (82). Level: – 13·8 ft.

No. 15 (DK 8377). Pottery; no slip. 1·5 × 0·72 × 0·31 ins. Rectangular in shape. One side bears a row of pictographs. On one half of the other is the impression of a small square seal, apparently the figure of a short-horned bull, and beyond, two signs above an animal which cannot be identified. Locus: Bl. 7, ho. I, rm. 3. Level: – 16·8 ft.

Plate CII.—No. 1 (DK 8213). Faience; yellow paste with traces here and there of light blue glaze. 0·65 × 0·61 × 0·17 ins. Button seal with small perforated boss at back. Svastika device on obverse. Locus: First Street (22). Level: – 17·6 ft.

No. 2 (DK 7679). (*Cf.* No. 8 and Pl. CIII, 11). Pottery; no slip. 0·87 in. in diameter by 0·25 in. thick. Impression of urus bull on one side; on the other there is a distinct impression of matting. Well baked, and is more probably an amulet than the sealing of a package accidentally burnt. Locus: Bl. 3, ho. II, rm. 25. Level: – 15·3 ft.

No. 3 (DK 8244). Faience; a very friable yellow paste, from which the glaze has entirely disappeared. 0·89 × 0·75 × 0·62 ins. On the top and base incised crossed lines form a number of small squares. Three of the sides bear an animal in relief, which from clearer examples we can identify as a urus, a rhinoceros and a bull; the fourth side is too worn for anything to be made out. Locus: Bl. 9, bet. hos. VI and VIII. Level: – 16·8 ft.

No. 4 (DK 9328). (*Cf.* Pl. CIII, 14). Pottery; no slip. 1·3 ins. in diameter. On the obverse a urus bull was stamped with a small square seal, and the reverse shows the impression of matting and knotted cords. This pellet of clay certainly looks like the sealing of a package, and undoubtedly owes its survival to being accidentally burnt. Locus: Bl. 2, ho. I, rm. 14. Level: – 20·8 ft.

No. 5 (DK 9281). (*Cf.* Pl. CIII, 8, 10). Pottery; red slip. 1·29 × 0·64 × 0·33 ins. Rectangular; one end broken off. On the left of the obverse of this amulet, there is a large tree with a platform round it, exactly like the platforms that are

frequently built round the sacred trees of India to-day. To the right is an upright object at the top of which a pair of horns flank what is probably a branch of a tree, a device that is seen as the head-dress of the deities on seals 222, 235 and 420. Below the horns are two projections of which I am not able to suggest the meaning, unless one is an animal's head.[1] To the right again is a bull or buffalo which appears to have just tossed a man over its back. Perhaps this animal is to be regarded as the guardian of the cult object and sacred tree behind it, in which case it has effectually disposed of an intruder. The reverse side bears a deep impression of a mat. Locus : Bl. 3, ho. II, rm. 34. Level : – 17·7 ft.

No. 6 (DK 8870). A roughly shaped, well baked piece of pottery. 1·32 × 0·65 × 0·37 ins. On the obverse is an impression of part of the head and horn of the urus-like animal made with a square seal. From the pattern on the reverse of this object, it seems to have been laid on some woven material dissimilar from the usual matting, the impression left being very sharp. Locus : Bl. 8, ho. II, rm. 23. Level : – 13 ft.

No. 7 (DK 8252). (*Cf.* No. 13 in the same plate). Pottery ; red slip. 1·78 × 0·52 × 0·37 ins. The amulet is of unusual shape, and carefully made and finished. On both sides there is a line of pictographs. Round the edge is a line of T-shaped motifs in relief, so arranged as to fit into one another. Exactly the same form of ornament has already been found cut in shell.[2] Locus : Bl. 7, ho. IX, rm. 29. Level : – 14·4 ft.

No. 8 (DK 7594). (*Cf.* No. 2 and Pl. CIII, 11). Drab-coloured pottery. Diameter 0·82 in. ; thickness 0·29 in. The obverse bears a urus bull without its cult object ; on the reverse an impression of matting is strongly marked. Locus : Bl. 3, ho. II, rm. 34. Level : – 16·9 ft

No. 9 (DK 7991). (*Cf.* Pl. CIII, 9). Faience ; yellow paste with a white glassy coat. 1·25 × 0·53 × 0·28 ins. Rectangular in section. The attitude of the deity seated on a dais recalls the figures on seals 222, 235 and 420. On either side of this central figure is a kneeling worshipper, one of whom holds in his hands the curious tong-like object held by a tree-worshipper on the amulet seen in Pls. XC, 24 (*a*) ; CI, 2.[3] Behind the worshippers are attendant serpents. The reverse of this amulet bears a simple line of pictographs. An identical amulet was found in a previous season,[4] but not in so good a state of preservation. Locus : Bl. 7, ho. V, rm. 66. Level : – 14 ft.

No. 10 (DK 7793). Faience ; grey, sandy paste. 1·2 × 0·5 × 0·18 ins. Rectangular. There is a line of inscription on one side ; and on the other what is probably a gharial and three pictographs. Locus : Bl. 7, ho. I, rm. 19. Level : – 14·6 ft.

No. 11 (DK 7116). Pottery. Diameter 0·8 in. ; thickness 0·3 in. On the obverse a svastika is stamped ; the reverse bears the impression of matting. Locus : Fore Lane, bet. Bls. 1 (Palace) and 10 (I). Level : – 19·1 ft.

[1] If the projection behind is a pigtail, the one in front may be a human head.

[2] *Mohenjo-daro and the Indus Civilization*, pl. CLV, 35.

[3] For a possible explanation of this object, see p. 354 of this chapter.

[4] *Mohenjo-daro and the Indus Civilization*, pl. CXVIII, 11.

No. 12 (DK 7847). Faience; a grey paste with a glaze, now yellow. 0·69 × 0·69 × 0·25 ins. A fragment only. On one side, only a kneeling worshipper remains; and a few pictographs on the reverse. The edge of this amulet had been coated with a black pigment which was probably manganese. Locus: Bl. 7, ho. V, rm. 54. Level: – 18·1 ft.

No. 13 (DK 9109). Pottery; red slip. 1·78 × 0·52 × 0·37 ins. For a description of this amulet, see No. 7 in same plate. Locus: Bl. 1, ho. VI, rm. 55. Level: – 17·5 ft.

No. 14 (DK 4975). A square pottery plaque coated with a grey slip. 0·85 × 0·85 × 0·42 ins. That this object was made in a mould is suggested by the plain back on which there is a hollow finger-impression. Locus: Bl. 11, ho. III, rm. 29. Level: – 13·3 ft.

✓No. 15 (DK 8489). Pottery. Diameter 1·1 ins., thickness 0·25 in. The obverse was stamped with a square seal on which was an elephant with three signs above it. On the reverse is a deeply incised, winged figure with outstretched legs that resembles a bird. Possibly this is a rough copy of the deployed eagle that so commonly occurs in the art of Elam and Sumer, but the maker not being very sure of his subject erred in the detail of its portrayal. Locus: First Street (11). Level: – 19·9 ft.

Plate CIII.—The details of Nos. 8-15 have all been described already in my remarks on Pls. CI and CII.

No. 16 (DK 7680). Pottery; smooth red slip. 1·05 × 1·05 × 0·28 ins. This well made amulet is exactly like some found in the upper levels, one of which has been described (Pls. LXIX, 23; XCI, 13). It is illustrated again to indicate the wide range of level of this type of amulet. Locus: Bl. 1 (Palace), court I (16). Level: – 18·3 ft.

Nos. 17-19 are plasticine impressions of the inscriptions on certain ivory rods found at various levels whose use is at present unknown. For No. 19, see also Pl. CX, 53.

Copper Tablets.

Copper tablets such as are illustrated in Pls. XCIII and CIII are found in considerable numbers in the buildings of the Late Period. They also occur at levels of Intermediate date, where, however, it is suspected that they may have been dropped by people grubbing for brick during the Late Period.

I adhere to the view that these tablets were amulets, which were carried in cases on the person. Unlike the inscriptions on the seals which are apparently their owners' names, the inscriptions on the copper tablets seem to be associated with the animals portrayed upon them, as seen on comparing the more recently found tablets with those published in the former work on Mohenjo-daro.[1] Even a nondescript animal like that on No. 12 in Pl. XCIII—perhaps an antelope—has its appropriate inscription on the reverse side; tablets have already been published bearing the same inscription together with the same animal.[2]

[1] *Mohenjo-daro and the Indus Civilization*, pls. CXVII, CXVIII.

[2] *Op. cit.*, pls. CXVII, 1; CXVIII, 1.

When found, these copper tablets are invariably covered with a thick patina, and before cleaning them it is quite impossible to make out anything upon them. After cleaning, if the tablet is not too corroded, the animal or inscription, as the case may be, appears in faint dark red lines upon the lighter red of the copper, the incisions being filled in with cuprous oxide. It is, therefore, exceedingly difficult to photograph them, and in the majority of cases they have had to be copied by hand.

Upper Levels.

Plate XCIII.—No. 1 (DK 3697). 1·31 × 0·62 × 0·11 ins. Found with No. 2 on the same plate and two other copper tablets, on which the animals and inscriptions resemble those of Pl. CXVIII, 2, 4, of the first book on Mohenjo-daro. This tablet bears the same inscription as that on No. 11, though an elaborate compound pictograph (*b*) takes the place of the animal. Locus : Bl. 2, ho. IV, court 15. Level : – 6·1 ft.

No. 2 (DK 4346). 1·17 × 0·55 × 0·2 ins. The inscription on this tablet (*a*) is new to us ; there is only one sign on the reverse (*b*). It should be noted that it was found in the same room as No. 1, but at a considerably lower level. Locus : Bl. 2, ho. IV, court 15. Level : – 10·6 ft.

No. 3 (DK 3850). 1·32 × 0·53 × 0·05 ins. Neither of the inscriptions on obverse and reverse occurs on any previously found tablet. Locus : Bl. 6, ho. II, rm. 11. Level : – 10 ft.

No. 4 (DK 3696). (*Cf.* No. 5 in Pl. CXVIII of the first book). 1·08 × 1·12 × 0·12 ins. The upper line of characters on this tablet appears to have been added as an afterthought. Locus : First Street (11). Level : – 8 ft.

It is interesting to find an endless rope pattern of the kind incised on this copper tablet, for in most ancient countries twist patterns, especially of the endless type, had a magical significance ; the occurrence of such a pattern on one of the tablets corroborates the view that they were amulets. Very similar designs of a looped and endless cord are known in Egypt on a Predynastic jar of the Middle Period published by Mr. Hornblower.[1] Though the pattern is not exactly the same as the one from Mohenjo-daro, the general resemblance is so close that these designs look to have had a common origin. Moreover, on two scarabs dated between the Thirteenth and Seventeenth Dynasties of Egypt, the pattern is identical with that on the copper tablet.[2]

Practically the same design is also painted on a piece of flint that was found by the Egypt Exploration Society in 1922 in a sculptor's workshop at Tell el-Amarna and is now in the Ashmolean Museum, Oxford. In the Egyptian sign-list, also, a very similar pattern, but halved, has its place.[3]

Coiled patterns are very frequent on the early seals and sealings of Sumer, considerably more so than in Egypt, and Asiatic influence was probably responsible for their introduction into the latter country. All the examples given appear to be elaborations of the figure-of-eight motif so frequently met with on

[1] *Ancient Egypt*, 1928, p. 69.

[2] Petrie, *Buttons and Design Scarabs*, pl. VIII, figs. 129-30. For other examples, see my article in *Antiquity*, Dec., 1931, p. 469.

[3] Gardiner, *Egyptian Grammar*, p. 506, 5.

the early seals of Sumer.[1] This motif has also been found scratched on a Predynastic jar from Faras in Nubia[2] and it was sometimes used in Grecian art, for it occupies a prominent place on a painted sarcophagus from Klazomenai.[3] It is to be found on beads of the etched carnelian type, both in Sumer and in the early Indus Valley,[4] and is also known in early Cappadocia. The same figure-of-eight design is used as a cattle-brand in some parts of India at the present day and is considered to be potent against the evil eye.[5] This design and other endless-cord motifs are also regarded as symbols of longevity.[6]

No. 5 (DK 4143). 0·92×0·88×0·16 ins. Locus: Bl. 6, ho. II, rm. 7. Level: – 11·7 ft.

No. 6 (DK 3962). 0·9×0·9×0·13 ins. Locus: Bl. 6, ho. II, rm. 10. Level: – 10 ft.

These two tablets which were found in the same part of the site bear exactly the same inscriptions and are so nearly the same size that it is possible that corrosion alone is the cause of any slight difference. Three of the four signs on the obverse of each (I include the double stroke as one sign) appear in the same order on tablet 12 in the same plate, and also in Pls. CXVII, 1; CXVIII, 1, of the previous book on Mohenjo-daro; on each of the latter they are associated with the same animal in the same posture.

No. 7 (DK 4532). 1·5×0·8×0·1 ins. The animal represented on this tablet looks more like a mastiff than the cow or bull which the two horns suggest that it is. It is possible that this is a composite animal; a dog has never yet appeared in the glyptic art of Mohenjo-daro, although it was frequently modelled in clay or carved in stone.[7] The inscription is new to us and does not appear on the tablets found in previous seasons. Locus: Bl. 1 (Palace), court III (2). Level: – 10·1 ft.

No. 8 (DK 4209). 1·37×0·95×0·07 ins. The composite animal here represented has an antelope's head at each end of a body which might be either that of a cow or a rhinoceros; there are always spotted portions fore and aft in representations of the latter animal on either the seals (see Pl. LXXXVIII, 309) or the copper tablets.[8] Both the inscription and the animal on this tablet are duplicated in Pl. CXVII, 3, of the first book. This curious beast, the like of which had never actually been seen by anyone at Mohenjo-daro, doubtless existed in the imaginations of some of the people living there and therefore its portrayal had, perhaps, a magical value.[9] Possibly this amulet was thought to convey to its wearer the alertness of the antelope—in this case doubled—combined with whatever attributes the rhinoceros was supposed to possess. Locus: Bl. 6, ho. III, rm. 41. Level: – 9·9 ft.

1 What may, perhaps, be the prototype of this pattern is to be seen on a seal of the Jemdet Nasr Period from Ur. Woolley, *The Development of Sumerian Art*, pl. 68 (f).

2 *Liv. Ann. Arch. Anthrop.*, vol. VIII, 1.

3 Swindler, *Ancient Painting*, fig. 221.

4 *Anthropology Memoirs*, Field Museum, Chicago, vol. I, pl. LX, fig. 55

5 "Ware the Evil-eye," *Illust. Times of India*, April 26th, 1931.

6 The connection is quite obvious; as the cord patterns have no end, so also is life without end.

7 See Pls. LXXVII, 16, 17; LXXIX, 5, 6, etc., of this book.

8 *Mohenjo-daro and the Indus Civilization*, pl. CXVII, 7.

9 For a very similar idea, see the two-headed goat on a Predynastic prism from Karnak, Egypt; Evans, *Palace of Minos*, I, p. 69, fig. 38 b(d).

No. 9 (DK 3447). 1·38×1·03×0·09 ins. The beast on this tablet is similar, though lacking a head, to one found in a previous season, as is also the inscription on the other side.[1] What animal it represents it is hard to say; it more nearly resembles a bull than anything else, though the horns can hardly be those of that animal. To this tablet another of smaller dimensions (1·3×0·6×0·09 ins.) was adhering, in shape and the signs upon it exactly similar to No. 3 of this plate. Locus: Bl. 9, ho. VII, rm. 18. Level: – 2·8 ft.

No. 10 (DK 3811). 1·25×0·9×0·15 ins. On this tablet there is another fabulous beast, combining the fore-quarters of a tiger with the hind-quarters of a bull or similar animal. The inscription on the reverse bears no resemblance to that on a tablet found some time ago, on which a tiger, but not a composite one appears.[2] It is, however, the same as on a damaged tablet where the animal seems to be the same composite beast.[3] Locus: Bl. 9, ho. VI, rm. 31, Level: – 6·9 ft.

No. 11 (DK 4672). 1·45×0·93×0·08 ins. On one side there is an animal with short upturned tail and spiral, lateral-spreading horns which may be those of a goat. The feeding-trough in front of it somewhat resembles in shape the offering-tables of pottery (Pl. LV, 5) that are found at Mohenjo-daro. On the reverse is the same series of characters that occurs on No. 1 in the same plate. On the animal's side is the heart-shaped device that so frequently appears as shell inlay and in other ornamental work (Pls. CXL, 35; CXLI, 11–13). This symbol also appears on other animals.[4] Locus: Bl. 9, ho. VII, rm. 51. Level: – 4·7 ft.

No. 12 (DK 3817). 0·92×0·92×0·18 ins. The inscription on this tablet has already been referred to in connection with No. 6, and with Pl. CXVII, 1, of the first book, where the animal is the same. The posture of this beast, looking backwards over its shoulder, is very like Sumerian representations of antelopes and shows a close observation of nature, for the attitude is a very usual one though seldom represented in later art.[5] Locus: Bl. 6, ho. III, rm. 16. Level: – 7·3 ft.

No. 13 (DK 4408). 1·16×0·89×0·12 ins. The composite animal on this amulet appears to be partly bull, partly elephant. The inscription, like the animal, is new to us. Locus: Bl. 1, ho. I, rm. 18. Level: – 5·5 ft.

No. 14 (DK 4807). 1·35×1·03×0·07 ins. The inscription on the reverse of this very interesting tablet is in a better state of preservation than was the case with a similar tablet that was published before.[6] It will be seen that the human figure is very similar, wearing horns or feathers on the head and carrying a bow. A tail is quite clearly represented on this tablet, whereas though also shown on the earlier found tablet it is far from clear. Whether this figure represents a hunter disguised for the chase in the skin of some animal, or a deity, half human, half beast, it is difficult to say. I am inclined to the latter view

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXVII, 8.

[2] *Op. cit.*, pl. CXVII, 4.

[3] *Op. cit.*, pl. CXVII, 9.

[4] *Op. cit.*, pl. CXVII, 7.

[5] For good examples on Sumerian seals, see Ward, *Seal Cylinders of Western Asia*, figs. 117, 119, 124, 396, etc

[6] *Mohenjo-daro and the Indus Civilization*, pl. CXVII, 16.

as a man-bull is certainly represented on one of the seals,[1] and is also portrayed in the round, as seen in Pls. LXXII, 7 ; LXXIV, 21, 22, of this book. Locus : Bl. 10, ho. I, rm. 13. Level : – 8·5 ft.

Lower Levels.

Plate CIII.—No. 1 (DK 5444). 1·41×1×0·07 ins. Both the beast on this tablet and the inscription on the reverse are presumably the same as in Pl. XCIII, 9. Locus : Bl. 1 (Palace), S. W. Wing (II), rm. 6. Level : – 16·5 ft.

No. 2 (DK 4235). 1·45×0·97×0·07 ins. We have here the urus-like animal that so frequently appears upon the seals. On the copper tablets, however, it only occurs twice ; on the one here illustrated and on another found in an earlier season.[2] Curiously enough, on the first found tablet there was a shallow food-dish in place of the usual tall cult-object, and it is unfortunate that on the recently discovered tablet the object before the animal is indistinguishable. Locus : First Street (1). Level : —14·7 ft.

No. 3 (DK 5996). 1·45×1·02×0·07 ins. The short tail and curling, horizontal horns mark this animal as a goat, exactly similar to that on the copper tablet in Pl. XCIII, 11, though the inscriptions on the reverse sides of these tablets are not the same. It will be noted that the heart-shaped design on the flanks of these animals is also seen as shell inlay, and on the side of a rhinoceros on a tablet found during the earlier excavations.[3] Locus : Bl. 1, ho. VIII, rm. 63. Level : – 18·8 ft.

It is quite possible that some of the sacred animals of Mohenjo-daro were decorated on occasion with painted designs. I have myself seen very varied designs painted on goats in the Panjāb—it was stated, for identification, though such elaboration of design could hardly be considered necessary solely for this purpose. In Sindh to-day, bulls are often branded either for good luck or as a protection against the evil-eye ; the svastika is frequently used by the Muhammedans for this purpose. It is, therefore, not surprising to find that animals were marked with what may have been a sacred symbol at Mohenjo-daro, though why such marks should be shown on certain animals on the copper tablets only, it is difficult to see.

No. 4 (DK 5421). 1·45×0·55×0·13 ins. There is a long legend on one side of this simple rectangular tablet and a single character on the other. Locus : Bet. Bls. I (Palace) and 2 (III), rm. 17. Level : – 14·4 ft.

No. 5 (DK 8108). 0·86×1×0·23 ins. Each side of this tablet bears only a single sign ; that on the side not shown in the photograph is the same as the left hand sign on No. 7 (*a*). Locus : First Street (21). Level : — 14·8 ft.

No. 6 (DK 4157). 1·14×0·09×0·09 ins. In the description of the tablets found in the upper levels we have already alluded to this double-headed animal (see also Pl. XCIII, 8). The legends inscribed on these tablets are not the same, though the inscription on No. 8 in Pl. XCIII agrees with that on a previously found tablet with a double-headed animal.[4] Locus : First Street (2). Level : – 14·7 ft.

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXI, 356.

[2] *Op. cit.*; pl. CXVII, 10.

[3] *Op. cit.*, pl. CXVII, 7.

[4] *Op. cit.*, pl. CXVII, 3.

No. 7 (DK 4294). 0·9×0·9×0·11 ins. A well-preserved tablet with two pictographs on one side and five diagonal strokes on the other. Locus: Bl. 2, ho. II, rm. 24. Level: – 16·5 ft.

No. 12 (DK 5976). 1·32×1·15×0·24 ins. We are already well acquainted with this scene of a hare standing over a little bush.[1] Owing to corrosion, the pictographic characters on the reverse are not decipherable, though the inscription seems once to have been the same as on the earlier found tablets. Locus: Bl. 1A, rm. 58. Level: – 19·3 ft.

It seems that some at least of these copper tablets were cut to definite sizes and there are three shapes :—

(*a*) Long and narrow;

(*b*) Square, or nearly so;

(*c*) Rectangular.

The long, narrow tablets were evidently used only for inscriptions, like the narrow seals of Type (*f*) which very rarely bear animal figures. The square tablets, *e.g.*, No. 4 in Pl. XCIII, were used either for inscriptions or for animals; in the latter case the head, as in No. 12 in the same plate, was so represented as to fit comfortably into the space available. These square tablets average 0·92× 0·92 ins. in size, but they vary considerably in thickness.

The rectangular tablets, like the square ones, are also all very much the same size, and it seems that the people for whom they were cut expected and obtained regulation sizes. Whether there was any virtue apart from its cost in any particular dimension is doubtful, though certain sizes may have been suitable for certain purposes. It seems likely that blank pieces of copper were kept ready by the engraver who incised animal and inscription as desired for each client. Knowing as we do how labour is divided up in every craft in modern India, it is improbable that the engraver did more than actually incise the animal and inscription on the tablet, leaving its cutting and trimming to another man. He would have stocked tablets in certain sizes and shapes for convenience in pricing them.

Owing to the corroded state in which these tablets are invariably found, it is difficult to say how they were made. In some specimens I have thought that I could distinguish the marks of a saw, whereas on others a slight bevelling of the edges suggests that the plate from which they were made was deeply scored with lines marking off the required sizes, which were then broken off. Anybody who has tried to cut copper-plate, even with a modern well-adjusted saw, will appreciate the difficulty in doing so; and the metal worker of ancient days with his very crude saw—whose teeth were far from regular—would, I imagine, have found it a very tiresome task. At any rate, whatever the procedure adopted, the edges whether cut or sawn were rubbed down on a stone, as shown by the slight rounding of the corners. Probably the plates from which the tablets were cut were first cast, then hammered out into larger sheets of the required thickness.

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXVII, 5, 6. Little regard is paid to this animal in India at the present day, though figures of the hare surmount roof-tiles in China to guard a house against evil spirits.

I do not think that these copper tablets can be regarded as coins or ingots, as has been suggested by some.[1] Owing to their resemblance in shape and size, it was at first thought that they might have been used as coins, but on a number being weighed before cleaning them no agreement in weight was found. The numerous and accurate chert weights that have been unearthed prove that at Mohenjo-daro great importance was attached to accuracy, and if these tablets had been coins, one would certainly have expected those of approximately the same size to be about the same weight.[2] Nor can these tablets be regarded as ingots, for none are of sufficient size to be useful in the manufacture of anything else ; and surely no one would take the trouble to incise carefully on both sides of an ingot devices destined to be lost in the melting-pot or hammered out of existence.

It will be seen that the animals on these tablets all face to the right, and we have found no exceptions to this rule, except those beasts that are looking backwards, as in Pl. XCIII, 12. We have already pointed out that, owing to their being only lightly incised, these tablets could not have been used as seals ; there could also have been no subsequent alteration in the position of the animal. The former fact is of value in providing another reason for thinking that the so-called " seals " of steatite were actually so used, for the animals on the impressions that they make, with rare exceptions, face the same way as those on the copper tablets. This convention that the animals should all face to the right was not strictly observed on early Sumerian or Elamite seals. In India it may have had some significance that would now be difficult to trace.

A tablet (SD 3225) of very unusual form, 0·85 in. in diameter by 0·12 in. thick, is illustrated in Pl. LXXXII, 6. Both sides are in relief and from its colour the metal appears to be bronze. On both obverse and reverse this tablet bears the same inscription ; but on the obverse, as seen in the illustration, there is also the same composite animal as on seals 411, 450, 521 and 636. The reverse shows the familiar urus-like animal with its usual cult-object before it. This tablet was evidently cast, and perhaps finished with the aid of a graver. The workmanship is good, though the finer details have disappeared owing to corrosion. It was probably carried as an amulet and is the first of its kind to be found. Locus : SD Area, Bl. 6, rm. 13. Level : — 0·8 ft.

TABULATION OF SEALS (DK AND SD AREAS).

No.	Type.	Dimensions in inches.	Material.	Locus. Block.	House.	Room.	Level (ft.)	Field No.
1	E	0·7 × 0·68 × 0·23	V. Paste	..	..	..	Surface	DK 10436
2	B	0·94 × 0·92 × 0·3	Steatite		West St.		+2·0	„ 10323
3	B	1·05 × 1·12 × 0·2	„	..	..	..	Surface	„ 10799
4	F	1·42 × 0·7 × 0·45	„	9	III	26	−2·0	„ 3431
5	B	0·9 × 0·9 × 0·28	„	1	VI	51	−2·2	„ 5223

[1] *Journ. Roy. Asiatic Soc.*, April, 1932, p. 474.

[2] The difference is due to their varying thicknesses rather than to area.

No.	Type.	Dimensions in inches.	Material.	Locus. Block.	House.	Room.	Level (ft.)	Field No.
6	?	0·77 × 0·49 × 0·3	Steatite	8A	..	42	– 3·2	DK 10087
7	B	1·12 × 1·12 × 0·25	"	9	III	29	– 2·4	" 3379
8	B	1·3 × 1·3 × 0·45	"	..	..	..	– 2·4	" 10014
9	B	1·6 × ? × 0·4	"	19	..	13	– 2·5	" 10508
10	B	0·9 × 0·9 × 0·28	"	Central St.			– 2·5	" 11617
11	B	1·33 × 1·32 × 0·35	"	10	III	1	– 3·0	" 4663
12	B	0·97 × 0·97 × 0·35	"	7	V	63	– 2·9	" 3353
13	B	1·05 × 1·05 × 0·3	"	15	VI	29	– 3·5	" 11212
14	B	0·9 × 0·9 × 0·2	"	18	—	88	– 3·5	" 10157
15	B	1·11 × 1·11 × 0·31	"	20	I	6	– 3·5	" 12523
16	B	0·61 × 0·61 × 0·25	Silver	9	XII	95	– 3·5	" 10302
17	E	0·6 × 0·6 × 0·16	Paste	8	III	25	– 3·6	" 10511
18	B	1·1 × 1·05 × 0·32	Steatite	9	I	36	– 3·2	" 3285
19	B	1·85 × 1·85 × 0·5	"	7	V	53	– 3·7	" 3356
20	F	? × 0·35 × ?	"	8	II	22	– 4·2	" 3335
21	B	0·8 × 0·8 × 0·31	"	22	—	5	– 3·7	" 10149
22	B	1·0 × 1·0 × 0·28	"	8A	—	44	–4·0	" 10753
23	B	1·19 × 1·19 × 0·36	"	22	II	10	– 3·8	" 10107
24	B	1·36 × 1·39 × 0·38	"	18	—	107	– 3·9	" 12688
25	F	0·51 × 0·32	"	6A	—	37	– 4·0	" 10334
26	B	1·25 × 1·35 × 0·4	"	9	III	35	– 3·7	" 3373
27	B	1·3 × 1·25 × 0·34	"	18	—	76	– 4·2	" 10889
28	F	1·6 × 0·85 × 0·3	"	9	VII	19	– 4·1	" 3631
29	B	1·17 × 1·15 × 0·39	"	17	III	29	– 4·0	" 10895
30	D	1·31 × 0·65 × 0·4	"	21	II	87	– 4·4	" 10355
31	B	1·05 × 1·04 × 0·34	"	14	III	25	– 3·9	" 10559
32	B	1·6 × 1·65 × 0·35	"	7	III	41	– 4·3	" 3361
33	B	1·38 × 1·58 × 0·5	"	7	V	52	– 4·3	" 3557
34	B	1·33 × 1·16 × 0·45	"	8	III	30	– 4·3	" 10893
35	B	0·75 × 0·75 × 0·22	"	9	I	47	– 4·2	" 10566
36	E	1·35 × 0·66 × 0·39	"	21	IV	27	– 4·4	" 10356
37	E	0·7 × 0·67 × 0·22	Faience	8A	—	34	– 4·7	" 10763
38	F	0·96 × 0·34 × 0·24	Steatite	Bet. Bls. 3 and 5			– 4·5	" 3504

No.	Type.	Dimensions in inches.	Material.	Locus. Block.	House.	Room.	Level (ft.)	Field No.
39	F	0·66 × 0·3 × 0·24	Steatite	9	I	47	–4·8	DK 10567
40	B	0·35 thick	„	8	II	21	–4·5	„ 3344
41	F	1·0 × 0·5 × 0·4	„	18	—	57	–4·5	„ 10231
42	B	1·0 × 0·75 × 0·3	„	St. bet Bls. 7 & 9 (VIII)			–4·6	„ 3439
43	F	1·35 × 0·55 × 0·44	„	25	I	13	–4·7	„ 10101
44	F	1·23 × 0·53 × 0·38	„	16	II	11	–4·7	„ 11625
45	B	0·8 × 0·78 × 0·25	„	8A	—	44	–4·5	„ 10829
46	F	1·35 × 0·42 × 0·3	„	9	III	30	–4·9	„ 3530
47	B	0·8 × 0·8 × 0·25	„	8A	—	41	–4·6	„ 12018
49	F	1·03 × 0·33 × 0·28	„	9	I	46	–4·7	„ 10609
50	B	1·0 × 0·98 × 0·3	„	15	V	22	–4·6	„ 10208
51	B	1·3 × 1·3 × 0·36	„	19	—	7	–4·7	„ 12418
52	B	1·07 × 1·09 × 0·3	„	6A	—	38	–4·8	„ 10359
53	B	? × ? × 0·3	„	22	—	10	–4·6	„ 10271
54	B	1·29 × ? × 0·35	„	16	II	11	–4·6	„ 11649
55	F	0·62 × 0·38 × 0·25	„	7	V	54	–5·2	„ 3329
56	B	0·9 × 0·9 × 0·26	„	22	—	3	–4·7	„ 10974
57	B	0·9 × 0·9 × 0·26	„	Central St.			–4·7	„ 10366
58	B	0·7 × 0·7 × 0·34	„	13	III	11	–4·6	„ 11439
59	?	0·7 × 0·62 × 0·3	„	17	III	23	–4·7	„ 11550
60	B	0·82 × 0·82 × 0·28	„	19	—	9	–4·7	„ 12110
61	F	0·91 × 0·45 × 0·3	„	20	I	1	–4·9	„ 12344
62	B	1·2 × 0·95 × 0·3	„	9	VI	30	–4·9	„ 4479
63	F	1·0 × ? × 0·3	„	16	II	11	–5·2	„ 10471
64	B	1·88 × 1·98 × 0·28	„	9	VII	52	–4·9	„ 4671
65	B	1·3 × 1·3 × 0·5	„	7	V	52	–5·0	„ 3399
66	B	0·8 × 0·8 × 0·2	„	16	II	11	–5·0	„ 11690
67	B	1·0 × 0·98 × 0·3	„	15	IV	17	–5·0	„ 11126
68	B	2·07 × ? × 0·5	„	17	III	23	–5·2	„ 11713
69	B	0·85 × 0·85 × 0·3	„	5	I	7	–5·3	„ 3432
70	B	1·17 × 1·17 × 0·36	„	18	—	78	–5·4	„ 12342
72	F	0·53 × 0·39 × 0·27	„	14	III	24	–5·4	„ 11433
73	F	0·7 × 0·4 × 0·2	Faience	9A	VIII	48	–6·0	„ 12703

No.	Type.	Dimensions in inches.	Material.	Locus. Block.	House.	Room.	Level (ft.)	Field No.
74	B	1·45 × 1·45 × 0·32	Steatite	23	II	11	– 5·6	DK 11862
75	B	1·36 × 1·36 × 0·25	„	13	III	13	– 5·6	„ 11794
76	B	1·28 × 1·28 × 0·38	„	18	—	88	– 5·5	„ 11997
77	F	1·3 × 0·58 × 0·4	„	7	VI	76	– 5·7	„ 3957
78	A	1·65 × 0·55	Faience	25	I	4	– 5·9	„ 10079
79	B	1·05 × 1·05 × 0·34	Steatite	7	II	87	– 5·6	„ 3472
80	B	1·25 × 1·25 × 0·3	„	8	III	30	– 5·6	„ 10923
81	B	0·92 × 0·9 × 0·25	„	22	—	2	– 5·6	„ 10905
82	B	0·98 × 1·0 × 0·3	„	22	—	2	– 5·6	„ 10906
83	B	1·12 × 1·09 × 0·35	„	18	—	111	– 5·7	„ 11249
84	B	1·45 × 1·45 × 0·4	„	18	—	44	– 5·6	„ 11284
85	B	1·25 × 1·25 × 0·3	„	14	II	8	– 5·9	„ 11030
86	B	1·24 × 1·24 × 0·46	„	20	II	13	– 5·7	„ 12596
87	B	0·9 × 0·9 × 0·26	„	18	—	99	– 5·8	„ 11868
88	B	0·98 × 0·98 × 0·28	„	First St. (30)			– 5·9	„ 10279
89	B	? × ? × 0·14	„	22	—	4	– 5·8	„ 10973
90	B	0·84 × 0·84 × 0·25	„	26	I	6	– 5·9	„ 10091
91	B	1·13 × 1·13 × 0·38	„	22	—	4	– 5·8	„ 10963
92	F	1·6 × 0·66 × 0·62	„	3	V	8	– 5·9	„ 3987
93	F	0·7 × 0·45 × 0·25	„	16	II	19	– 5·1	„ 10222
94	B	1·3 × 0·53 × 0·4	„	10	III	66	– 6·0	„ 4688
95	B	0·86 × 0·85 × 0·32	„	23	II	8	– 6·1	„ 3500
96	B	0·7 × 0·7 × 0·26	„	9	VIII	15	– 6·4	„ 12123
97	F	1·04 × 0·6 × 0·35	„	15	VI	27	– 6·1	„ 11375
98	B	1·59 × ? × 0·4	„	21	I	2	– 6·1	„ 10914
99	B	1·1 × 1·1 × 0·34	„	18	—	39	– 6·1	„ 11359
100	D	1·15 × 0·7 × 0·4	„	9	VIII	16	– 6·1	„ 7995
101	F	1·53 × 0·68 × 0·5	„	25	I	10	– 6·3	„ 11378
102	B	1·13 × 1·13 × 0·33	„	8	III	47	– 6·1	„ 10948
103	B	1·4 × 1·4 × 0·4	„	9	VIII	21	– 6·1	„ 7945
104	B	1·0 × 1·0 × 0·3	„	7	VIII	28	– 6·1	„ 4180
105	B	1·0 × 1·0 × 0·25	„	9	VIII	21	– 6·1	„ 7956
106	F	1·22 × 0·56 × 0·4	„	8	III	28	– 6·2	„ 11877

No.	Type.	Dimensions in inches.	Material.	Locus. Block.	House.	Room.	Level (ft.)	Field No.
107	B	1·08 × 1·1 × 0·3	Steatite	I	IV	41	– 6·3	DK 4695
108	B	1·2 × 1·2 × 0·35	"	21	IV	23	– 6·4	" 12318
109	B	1·23 × 1·23 × 0·29	"	15	IV	17	– 6·3	" 11196
110	B	1·07 × 1·07 × 0·29	"	15	VI	29	– 6·3	" 11329
111	B	1·02 × 1·01 × 0·3	"	20	I	1	– 6·4	" 12963
112	B	? × ? × 0·3	"	7	VIII	22	– 6·4	" 4028
113	B	0·72 × 0·71 × 0·23	"	20	II	19	– 6·4	" 13036
114	B	1·1 × 1·05 × 0·29	"		First St. (28)		– 6·4	" 10317
115	B	1·09 × 1·09 × 0·38	"		West St.		– 6·4	" 11374
116	B	0·85 × ? × 0·28	"	23	II	11	– 6·6	" 11845
117	B	1·1 × ? × 0·3	"		First St. (30)		– 6·5	" 10289
118	F	? × 0·5 × 0·3	"	7	III	42	– 6·5	" 7921
119	B	1·6 × ? × 0·35	"	26	I	5	– 6·7	" 10551
120	F	1·63 × 0·45 × 0·35	"	9	IX	75	– 6·5	" 10400
121	B	1·05 × 1·05 × 0·25	"	—	—	—	– 6·5	" 7908
122	B	0·91 × 0·91 × 0·3	"		West St.		– 6·6	" 11373
123	B	1·25 × 1·25 × 0·33	"	26	I	2	– 6·6	" 10865
124	B	1·21 × 1·21 × 0·34	"		First St. (30)		– 6·6	" 10460
125	F	0·98 × 0·38 × 0·3	"	21	III	21	– 6·6	" 10915
126	B	1·01 × 1·01 × 0·27	"	9	VIII	10	– 6·7	" 7993
127	B	1·17 × 1·17 × 0·39	"	21	IV	27	– 6·6	" 12356
128	B	1·3 × 1·27 × 0·37	"	8A	—	44	– 6·6	" 10916
129	B	1·2 × 1·2 × 0·3	"	16	II	15	– 6·8	" 11349
130	B	1·48 × 1·45 × 0·34	"	25	I	6	– 6·7	" 11358
131	B	1·0 × 0·95 × 0·3	"	1	V	43	– 6·6	" 4812
132	B	1·1 × 1·1 × 0·35	"	18	—	87	– 6·7	" 12222
133	D	1·35 × 0·57 × 0·38	"	9	VIII	20	– 6·8	" 8037
134	B	1·15 × 1·15 × 0·37	"	9	XII	92	– 6·8	" 11298
135	B	0·7 × 0·7 × 0·45	"	9	IV	6	– 6·8	" 4085
136	B	1·0 × 1·0 × 0·28	"	23	I	2	– 6·7	" 11607
137	B	1·1 × 0·95 × 0·3	"	7	IX.	31	– 6·6	" 4524
138	F	1·6 × 0·58 × 0·48	"	7	VI	61	– 6·9	" 4181
139	B	0·89 × 0·85 × 0·29	"	18	—	87	– 6·8	" 12202

No.	Type.	Dimensions in inches.	Material.	Locus. Block.	House.	Room	Level (ft.)	Field No.
140	B	1·32 × 1·32 × 0·32	Steatite.	Bet. Bls. 4 & 7			–7·0	DK 5462
141	B	1·05 × 1·08 × 0·25	"	7	VIII	21	–7·0	" 4052
142	D	1·35 × 0·56 × 0·4	"	Bet. Bls. 14 & 15			–7·1	" 11456
143	B	0·75 × 0·75 × 0·28	"	18	—	5	–7·0	" 13023
144	B	0·75 × 0·75 × 0·28	"	18	—	17	–7·1	" 11026
145	B	1·05 × 1·05 × 0·32	"	18	—	68	–7·2	" 11177
146	B	1·42 × 1·4 × 0·3	"	4	—	13	–7·1	" 4182
147	B	0·9 × 0·95 × 0·25	"	First St. (30)			–7·1	" 10483
148	B	? × ? × 0·72	"	4	—	3	–7·1	" 10281
150	B	1·25 × ? × 0·37	"	18	—	17	–7·2	" 10950
151	?	1·1 × 0·7 × 0·75	"	17	II	13	–7·2	" 11961
152	B	0·65 × 0·65 × 0·25	"	5	I	2	–7·3	" 3930
153	B	1·2 × 1·2 × 0·33	"	Surface			–7·3	" 11402
154	B	0·9 × 0·9 × 0·25	"	8	III	9	–7·3	" 7948
155	B	0·59 × 0·59 × 0·15	"	9	VIII	14	–7·1	" 8014
156	B	1·1 × 1·15 × 0·3	"	7	II	89	–7·2	" 3615
157	B	1·15 × 1·15 × 0·3	"	8	III	9	–7·3	" 7947
158	B	0·72 × 0·72 × 0·29	"	West St.			–7·4	" 11395
159	F	1·29 × 0·45 × 0·35	"	7	II	29	–7·4	" 3540
160	B	0·76 × 0·76 × 0·3	"	18	—	54	–7·5	" 11746
161	B	0·76 × 0·76 × 0·22	"	9	VIII	21	–7·4	" 7990
162	F	1·2 × 0·5 × 0·3	"	Bet. Bls. 12 & 12A.			–7·4	" 4794
163	B	? × ? × 0·51	"	7	V	64	–7·5	" 5656
164	F	1 23 × 0·59 × 0·38	"	9	VIII	10	–7·5	" 8038
165	B	0·65 × 0·65 × 0·2	"	13	III	13	–7·6	" 11714
166	B	1·05 × 1·05 × 0·3	"	23	III	14	–7·6	" 12504
167	B	1·08 × ? × 0·34	"	23	II	13	–7·5	" 11729
168	B	1·2 × 1·2 × 0·35	"	21	IV	23	–7·6	" 12138
169	B	1·7 × 1·7 × 0·36	"	13	III	18	–7·6	" 11275
170	F	1·1 × 0·45 × 0·31	"	6	I	3	–7·7	" 3734
171	B	1·06 × 1·06 × 0·35	"	18	—	74	–7·6	" 11502
172	E	0·6 × 0·58 × 0·15	"	10	II	27	–7·8	" 4773
173	C	0·68 × 0·68 × 0·33	"	18	—	3	–7·6	" 12153

No.	Type.	Dimensions in inches.	Material.	Locus. Block.	House.	Room.	Level (ft.)	Field No.
174	B	1·72 × ? × 0·49	Steatite	West St.			–7·7	DK 12124
175	B	0·8 × 0·8 × 0·2	"	16	I	10	–7·6	" 11635
176	B	0·61 × 0·61 × 0·23	"	Central St.			–7·7	" 11756
177	B	1·32 × 1·38 × 0·4	"	10	III	56	–7·7	" 5371
178	B	1·4 × 1·4 × 0·38	"	9	VIII	21	–7·5	" 8054
179	B	1·06 × 1·25 × 0·4	"	18	—	47	–7·7	" 12208
180	B	1·25 × 1·25 × 0·4	"	7	IX	29	–7·9	" 7920
181	B	0·85 × 0·79 × 0·19	"	Central St.			–7·9	" 14921
182	B	? × ? × 0·32	"	17	I	6	–7·9	" 11908
183	F	1·15 × 0·47 × 0·32	"	21	I	1	–7·8	" 11870
184	B	1·31 × 1·31 × 0·35	"	First St. (24)			–7·8	" 10712
185	B	0·95 × 0·95 × 0·29	"	Bet. Bls. 7 & 8			–8·0	" 3477
186	B	0·96 × 0·92 × 0·3	"	Bet. Bls. 1 (III) & 7			–8·0	" 6627
187	B	1·19 × 1·19 × 0·34	"	16	I	9	–8·0	" 11557
188	B	0·42 × 0·42 × 0·15	"	13	III	17	–8·0	" 11340
189	C	1·2 × 1·2 × 0·45	"	21	IV	27	–8·1	" 12109
190	B	1·3 × 1·3 × 0·26	"	18	—	20	–7·9	" 11245
191	B	1·15 × 1·15 × 0·35	"	7	II	88	–8·1	" 3617
192	B	1·11 × ? × 0·34	"	17	III	24	–8·1	" 12326
193	B	1·02 × 1·05 × 0·23	"	Bet. Bls. 1 (IV) & 10			–8·1	" 5227
194	B	1·38 × ? × 0·39	"	18	—	87	–8·1	" 12324
195	B	0·92 × 0·92 × 0·21	"	18	—	80	–8·1	" 12281
196	B	0·62 × 0·61 × 0·23	"	18	—	32	–8·1	" 12318
197	B	1·56 × 1·55 × 0·5	"	6	III	21	–8·1	" 3879
198	B	1·06 × 1·05 × 0·38	"	9	VIII	14	–8·2	" 8100
199	B	0·65 × 0·65 × 0·25	"	6	III	12	–8·3	" 3649
200	F	0·9 × 0·5 × 0·33	"	Bet. Bls. 1 (III) & 2			–8·2	" 4379
201	B	0·94 × 0·6 × 0·28	"	18	—	41	–8·4	" 12160
202	B	1·08 × 1·08 × 0·3	"	6A	—	41	–8·2	" 11216
203	B	0·7 × 0·7 × 0·2	"	18	—	75	–8·3	" 11366
204	F	1·3 × 0·65 × 0·4	"	9	VII	17	–8·3	" 3937
205	F	1·46 × 0·54 × 0·37	"	21	III	18	–8·6	" 11264
206	B	1·33 × ? × 0·35	"	Bet. Bls. 27 & 28			–8·3	" 11860

No.	Type.	Dimensions in inches.	Material.	Locus. Block.	House.	Room.	Level (ft.)	Field No.
207	B	1·4 × 1·45 × 0·4	Steatite	21	III	21	–8·4	DK 11184
208	B	1·18 × 1·18 × 0·3	"	Bet. Bls. 7 (I) & 10			–8·3	" 4648
209	B	? × ? × 0·07	"	7	III	39	–8·2	" 5644
210	B	0·91 × ? × ?	"	Central St.			–8·5	" 11386
211	B	1·01 × 1·01 × 0·31	"	9	IX	63	–8·3	" 12654
212	B	0·65 × 0·65 × 0·25	"	6	III	12	–8·3	" 3649
213	F	1·2 × 0·46 × 0·34	"	9	IX	65	–8·4	" 12668
214	B	1·05 × 1·05 × 0·35	"	7	I	6	–8·3	" 5912
215	B	0·9 × 0·81 × 0·28	"	9	XII	94	–8·3	" 12618
216	B	1·11 × 1·08 × 0·3	"	6A	—	36	–8·3	" 12293
217	B	1·06 × 0·7 × 0·34	"	7	III	44	–8·3	" 7936
218	B	0·78 × 0·78 × 0·37	"	9	IX	63	–8·3	" 12657
219	B	0·78 × 0·78 × 0·25	"	9	X	88	–8·4	" 12182
220	D	0·8 × 0·4 × 0·2	"	9	VII	47	–8·3	" 5748
221	F	1·11 × 0·4 × 0·29	"	7	V	63	–8·5	" 5559
222	B	1·05 × 1·05 × 0·32	"	15	I	5	–8·4	" 12050
223	B	0·91 × ? × 0·43	"	First St. (29)			–8·7	" 11364
224	B	1·02 × 0·99 × 0·29	"	8A	—	41	–8·4	" 12967
225	B	2·25 × 2·25 × 0·53	"	21	III	21	–8·6	" 11213
226	B	0·6 × 0·6 × 0·02	"	9	VI	36	–8·4	" 7952
227	F	1·45 × 0·68 × 0·52	"	Bet. Bls. 1 (IV) and 10			–8·5	" 4741
228	B	1·7 × 1·25 × 0·5	"	6A	—	32	–8·5	" 10863
229	B	1·3 × 1·2 × 0·55	"	9	IV	6	–8·4	" 8186
230	F	1·61 × 0·73 × 0·61	"	9A	VIII	59	–8·4	" 12965
231	B	1·2 × 1·05 × 0·3	"	8	I	8	–8·6	" 8024
232	B	1·25 × 1·25 × 0·48	"	7	II	89	–8·7	" 3589
233	B	1·15 × 1·15 × 0·38	"	29	I	21	–8·7	" 12117
234	B	1·0 × 1·0 × 0·3	"	9	IX	65	–8·7	" 12644
235	B	1·2 × ? × 0·28	"	6	III	21	–8·9	" 3882
236	F	0·98 × 0·49 × 0·31	Paste	8	III	30	–8·8	" 12286
237	B	1·06 × 1·06 × 0·31	Steatite	9	IX	65	–8·8	" 12689
238	B	1·19 × 1·19 × 0·4	"	18	—	21	–8·8	" 12370
239	B	0·75 × 0·75 × 0·25	"	1	VI	53	–8·7	" 5514

No.	Type.	Dimensions in inches.	Material.	Locus.			Level (ft.)	Field No.
				Block.	House.	Room.		
240	F	1·2 × 0·47 × 0·38	Steatite	9A	V	73	−8·7	DK 8265
241	B	1·1 × ? × 0·3	"	9	VI	31	−8·8	" 8075
242	B	1·05 × 1·05 × 0·32	"	10	II	25	−8·8	" 6500
243	B	1·4 × ? × 0·33	"	12	V	90	−8·8	" 4747
244	B	0·75 × 0·75 × 0·25	"	9	IX	64	−8·8	" 12783
245	B	? × ? × 0·39	"	9	III	29	−8·8	" 8231
246	B	0·95 × 0·95 × 0·37	"	7	IX	30	−9·0	" 7997
247	B	1·72 × 1·70 × 0·5	"	13	III	21	−9·3	" 12070
248	F	0·98 × 0·49 × 0·31	V. Paste	8	III	30	−8·8	" 12286
249	B	1·0 × 1·0 × 0·34	Steatite	14	IV	26	−8·9	" 11846
250	B	0·81 × 0·81 × 0·26	"	8	III	46	−9·0	" 12486
251	B	1·15 × 1·15 × 0·32	"	29	I	1	−9·0	" 12159
252	B	0·86 × 0·86 × 0·29	"	16	I	9	−9·0	" 11491
253	B	1·05 × 1·05 × 0·25	"	9	VIII	15	−9·2	" 8139
254	B	0·9 × 0·86 × 0·28	"	Bet. Bls. 6 & 8			−9·2	" 10273
255	B	1·06 × 1·06 × 0 35	"	22	—	2	−9·4	" 11938
256	B	0·8 × 0·8 × 0·25	"	17	I	3	−9·0	" 12047
257	B	0·85 × 0·82 × 0·22	"	4	—	13	−9·1	" 3416
258	B	1·13 × 1·13 × 0·36	"	17	I	7	−9·2	" 12194
259	B	1·4 × ? × 0·34	"	29	I	1	−9·2	" 12245
260	B	1·11 × 1·15 × 0·42	"	4	—	13	−9·3	" 3421
261	B	0·9 × 0·9 × 0·31	"	9	X	80	−9·3	" 12779
262	B	0·92 × ? × 0·25	"	7	I	13	−9·5	" 4815
263	B	1·05 × 1·03 × 0·31	"	10	II	25	−9·4	" 5924
264	B	1·25 × 1·29 × 0·3	"	West St.			−9·8	" 12294
265	B	0·88 × 0·88 × 0·25	"	Bet. Bls. 3 & 4			−9·6	" 4562
266	F	1·0 × 0·6 × 0·7	"	First St. (31)			−9·5	" 11221
267	B	1·12 × 1·08 × 0·32	"	9	IX	59	−9·5	" 12763
268	B	0·92 × 0·94 × 0·23	"	9A	VIII	44	−9·3	" 12775
269	B	1·2 × 1·14 × 0·34	"	9	XI	75	−9·3	" 12498
270	B	0·7 × 0·7 × 0·22	"	23	I	2	−9·8	" 11926
271	B	1·32 × 1·37 × 0·4	"	First St. (24)			−9·5	" 12593
272	B	1·38 × 1·35 × 0·4	"	2	II	22	−9·4	" 5331

No.	Type.	Dimensions in inches.	Material.	Locus. Block.	Locus. House.	Locus. Room.	Level (ft.)	Field No.
273	F	1·6 × 0·59 × 0·35	Steatite	1	III	1	−9·5	DK 4604
274	B	0·91 × 0·91 × 0·26	"	9A	VIII	55	−9·6	" 12857
275	B	0·88 × 0·88 × 0·28	"	13	II	7	−9·6	" 12211
276	B	1·2 × 0·7 × 0·29	"	9	XI	75	−9·4	" 12516
277	B	1·36 × 1·36 × 0·35	"	7	II	89	−9·6	" 3642
278	B	1·23 × 1·2 × 0·39	"	10	IV	73	−9·5	" 5439
279	B	1·28 × 1·2 × 0·28	"	9A	V	75	−9·5	" 8165
280	B	1·15 × 1·14 × 0·31	"	12	V	95	−9·7	" 5575
281	B	1·0 × 1·0 × 0·35	"	4	—	13	−9·6	" 3422
282	B	0·8 × 0·78 × 0·27	"	9	IX	66	−9·9	" 12849
283	B	0·98 × 0·98 × 0·3	"	First St. (29)			−9·7	" 11233
284	B	1·0 × 0·96 × 0·27	"	8	III	37	−9·5	" 8103
285	B	1·15 × 1·14 × 0·31	"	12	V	95	−9·7	" 5575
286	B	1·0 × 1·0 × 0·29	"	8	III	47	−9·6	" 12449
287	B	1·45 × ? × 0·41	"	8	III	37	−9·9	" 8105
288	F	1·45 × 0·6 × 0·4	"	12A	II	12	−9·9	" 5476
289	F	1·15 × 0·48 × 0·35	"	2	I	8	−10·2	" 4271
290	B	1·0 × 1·0 × 0·25	"	Bet. Bls. I (III) & 3			−9·7	" 4458
291	B	0·88 × 0·58 × 0·42	"	9	I	24	−9·8	" 8150
292	D	1·03 × 0·45 × 0·3	"	4	—	6	−9·8	" 5667
293	B	0·9 × 0·9 × 0·3	"	8	II	17	−9·9	" 7906
294	B	0·8 × 0·8 × 0·25	"	7	III	52	−9·7	" 5718
295	B	0·88 × 0·88 × 0·23	"	9	I	37	−9·9	" 8106
296	B	0·7 × 0·7 × 0·19	"	7	VI	76	−9·9	" 7200
297	F	2·05 × 0·58 × 0·42	"	1	I	15	−10·0	" 4546
298	B	0·91 × 0·91 × 0·28	"	9	IX	63	−10·1	" 12851
299	C	0·6 × 0·6 × 0·25	"	6	II	10	−10·0	" 3876
300	B	0·82 × 0·8 × 0·28	"	18	—	40	−10·1	" 12323
301	F	2·23 × 0·53 × 0·46	"	1	III	2	−10·1	" 4603
302	F	1·14 × 0·5 × 0·35	"	Bet. Bls. 3 & 4			−10·2	" 3463
303	F	? × 0·4 × 0·02	"	7	V	78	−10·2	" 7883
304	B	0·95 × 0·92 × 0·29	"	3	IV	48	−10·2	" 4155
305	B	0·93 × 0·93 × 0·25	"	7	IX	33	−10·4	" 8041

No.	Type.	Dimensions in inches.	Material.	Locus. Block.	House.	Room.	Level (ft.)	Field No.
306	B	1·49 × 1·49 × 0·37	Steatite	First St. (28)			–10·3	DK 12606
307	B	1·3 × 1·3 × 0·33	„	3	V	12	–10·1	„ 3606
308	F	0·95 × 0·45 × 0·25	„	1	I	12	–10·3	„ 5429
309	B	0·9 × 0·9 × 0·25	„	8	III	31	–10·3	„ 12502
310	B	1·17 × 1·5 × 0·24	„	Bet. Bls. 12 & 12A			–10·3	„ 5095
311	B	0·93 × 0·93 × 0·25	„	5	II	7	–10·5	„ 3370
312	B	1·07 × ? × 0·3	„	10	IV	84	–10·5	„ 6914
313	B	0·75 × 0·75 × 0·19	„	Bet. Bls. 7 & 8			–10·3	„ 3522
314	B	1·39 × 1·4 × 0·34	„	3	V	10	–10·5	„ 5128
315	F	1·01 × 0·8 × 0·42	„	29	I	1	–10·4	„ 12551
316	B	1·08 × 1·09 × 0·29	„	Bet. Bls. 1 (I) & 2			–10·5	„ 7039
317	B	? × ? × 0·28	„	10	IV	81	–10·5	„ 6498
318	F	0·76 × 0·44 × 0·28	„	16	I	5	–10·5	„ 11824
319	F	1·2 × 0·65 × 0·48	„	Bet. Bls. 1 (I) & 2			–10·5	„ 5892
320	E	0·61 × 0·6 × 0·13	„	10	IV	79	–10·8	„ 5632
321	B	0·56 × 0·59 × 0·21	„	6A	—	33	–10·4	„ 12586
322	B	0·97 × 0·9 × 0·3	„	8	I	8	–10·6	„ 12835
323	B	1·21 × 1·18 × 0·27	„	9	X	55	–10·6	„ 12782
324	B	1·41 × 0·93 × 0·5	„	9	IV	6	–10·6	„ 8222
325	F	1·88 × 0·66 × 0·37	„	4	—	2	–10·7	„ 7048
326	B	0·9 × 0·92 × 0·26	„	6	I	3	–10·6	„ 3719
327	D	0·78 × 0·46 × 0·2	„	1	VI	52	–10·7	„ 3473
328	C	0·73 × 0·07 × 0·3	„	14	I	2	–10·6	„ 11795
329	D	0·78 × 0·46 × 0·2	„	1	VI	52	–10·7	„ 5473
330	B	? × ? × 0·35	„	Bet. Bls. 1 (I) & 2			–10·8	„ 5840
331	B	? × ? × 0·29	„	9	IV	4	–10·8	„ 8224
332	B	1·12 × 1·12 × 0·24	„	West St.			–10·7	„ 12158
333	B	1·35 × 1·32 × 0·4	„	2	I	6	–10·8	„ 4321
334	B	1·07 × 1·07 × 0·3	„	7	II	88	–10·8	„ 3692
335	B	? × ? × 0·25	„	Bet. Bls. 3 & 4			–10·8	„ 3423
336	F	1·09 × 0·56 × 0·35	„	10	III	63	–10·8	„ 5174
337	B	1·15 × 1·1 × 0·3	„	7	IX	30	–10·8	„ 7888
338	B	1·05 × 1·05 × 0·3	„	7	II	88	–10·8	„ 3693

No.	Type.	Dimensions in inches.	Material.	Locus. Block.	House.	Room.	Level (ft.)	Field No.
339	D	0·75 × 0·4 × 0·15	Steatite	Bet. Bls. 10A & 11			– 11·1	DK 5663
340	B	1·26 × 1·25 × 0·34	"	12	V	95	– 10·9	" 5742
341	B	0·88 × 0·56 × 0·25	"	First St. (15)			– 10·9	" 12621
342	B	0·87 × 0·85 × 0·31	"	2	II	22	– 10·9	" 5325
343	B	0·89 × 0·89 × 0·3	"	3	VI	30	– 11·1	" 3627
344	B	0·92 × 0·92 × 0·31	"	8	III	30	– 11·0	" 12837
345	F	0·72 × 0·35 × 0·24	"	10	III	62	– 11·0	" 5577
346	F	0·89 × 0·41 × 0·21	"	12	I	2	– 11·0	" 12576
347	B	1·0 × 1·0 × 0·26	"	9	VIII	21	– 11·0	" 8203
348	B	0·89 × 0·87 × 0·26	"	Bet. Bls. 6A & 8A			– 11·1	" 12583
349	B	0·89 × 0·89 × 0·28	"	Bet. Bls. 4 & 7			– 11·0	" 5729
350	F	1·4 × 0·42 × 0·45	"	9	VII	17	– 11·2	" 6171
351	B	1·3 × 1·3 × 0·45	"	Bet. Bls. 1 and 10 (1)			– 11·1	" 6377
352	C	0·92 × 0·92 × 0·35	"	7	III	40	– 11·3	" 8137
353	B	1·4 × 1·38 × 0·3	"	2	II	22	– 11·2	" 4364
354	B	0·78 × 0·77 × 0·26	"	11	III	26	– 11·6	" 5580
355	B	0·9 × 0·9 × 0·3	"	Bet. Bls. 7 & 9 (VIII)			– 11·5	" 8121
356	B	? × ? × 0·27	"	9	I	50	– 11·3	" 12848
357	B	0·87 × ? × 0·33	"	1	I	18	– 11·3	" 5470
358	B	0·75 × 0·75 × 0·7	"	9	II	12	– 11·1	" 5042
359	B	1·03 × 1·03 × 0·25	"	Bet. Bls. 1 & 10 (1)			– 11·3	" 6389
360	B	1·0 × 0·95 × 0·26	"	9	X	80	– 11·6	" 12897
361	B	0·95 × 0·95 × 0·25	"	9	XI	70	– 11·5	" 12877
362	B	1·05 × 1·05 × 0·3	"	Bet. Bls. 6 & 8			– 11·6	" 7924
363	B	0·89 × 0·94 × 0·27	"	12	I	46	– 11·6	" 6530
364	B	1·02 × 1·02 × 0·26	"	Bet. Bls. 1 (V) & 10			– 11·7	" 5890
365	B	1·01 × 0·95 × 0·27	"	7	I	3	– 11·8	" 5785
366	B	1·32 × ? × 0·27	"	9	XI	70	– 11·4	" 12878
367	B	1·75 × 1·75 × 0·5	"	4	—	15	– 11·8	" 5393
368	B	0·96 × ? × 0·29	"	10	II	22	– 11·6	" 6317
369	F	0·77 × 0·3 × 0·25	"	3	VI	47	– 11·8	" 3743
370	B	0·86 × 0·86 × 0·29	"	9	VII	48	– 11·7	" 5791
371	B	0·79 × 0·79 × 0·28	"	First St. (35)			– 11·7	" 10924

No.	Type.	Dimensions in inches.	Material.	Locus.			Level (ft.).	Field No.
				Block.	House.	Room.		
372	?	1·25 × 0·62 × 0·4	Steatite	Bet. Bls. 7 & 9 (VIII)			−11·9	DK 8141
373	B	1·0 × 0·99 × 0·3	„	9	XI	72	−12·5	„ 12903
374	—	Sealing	Faience	9	VII	17	−10·1	„ 5837
375	B	0·8 × 0·8 × 0·25	Steatite	9	VI	36	−11·8	„ 8227
376	A	0·86 × 0·5	Calcite	3	VI	32	−11·8	„ 3599
377	C	0·82 × 0·78 × 0·22	Steatite	7	III	40	−11·9	„ 8143
378	B	0·9 × 0·95 × 0·34	„	7	III	52	−11·9	„ 5847
378A	D	1·31 × 0·65 × 0·4	„	21	II	7	−4·4	„ 10355
378B	B	1·3 × 1·2 × 0·55	„	9	IV	6	−8·4	„ 8186
378C	B	1·3 × 1·2 × 0·55	„	9	IV	6	−8·4	„ 8186
378D	A	0·86 × 0·5	Calcite	3	VI	32	−11·8	„ 3599
379	B	0·68 × 0·68 × 0·21	Steatite	7	I	13	−12·0	„ 5677
380	B	0·9 × 0·91 × 0·25	„	Bet. Bls. 12 & 12A			−12·0	„ 5332
381	B	1·02 × 1·05 × 0·29	„	10	I	2	−12·0	„ 5669
382	B	0·78 × 0·78 × 0·22	„	7	V	66	−12·1	„ 8013
383	E	0·7 × 0·7 × 0·11	Faience	First St. (14)			−12·1	„ 3810
384	B	1·17 × 0·69 × 0·45	Steatite	10	IV	71	−12·2	„ 5619
385	B	1·20 × ? × 0·28	„	Bet. Bls. 7 & 9 (III)			−12·2	„ 8327
386	B	0·98 × 0·66 × 0·29	„	9	VI	78	−12·2	„ 7569
387	F	0·95 × 0·5 × 0·38	„	10	IV	70	−12·2	„ 6091
388	F	1·0 × 0·59 × 0·55	„	10	III	62	−12·2	„ 5639
389	B	0·72 × 0·72 × 0·25	„	10	IV	87	−12·2	„ 6340
390	B	1·03 × 1·03 × 0·35	„	12	V	96	−12·3	„ 6837
391	F	1·1 × 0·6 × 0·4	„	Bet. Bls. 10A & 11			−12·3	„ 6080
392	F	1·3 × 0·48 × 0·35	„	Bet. Bls. 2 & 3			−12·3	„ 4471
393	B	1·1 × 1·1 × 0·22	„	12	I	1	−12·3	„ 8480
394	?	1·6 × ? × ?	„	10	IV	70	−12·4	„ 5941
395	F	1·14 × 0·44 × 0·37	„	Lane, east of Bl. 1 (I)			−12·4	„ 7242
396	B	1·66 × 1·63 × 0·5	„	1	III	2	−12·4	„ 5250
397	F	1·0 × 0·48 × 0·29	„	Bet. Bls. 4 & 5			−12·4	„ 4178
398	B	1·53 × 1·52 × 0·38	„	1	III	1	−12·4	„ 6599
399	B	1·09 × 1·05 × 0·3	„	9	VII	17	−12·4	„ 5678
400	?	1·6	„	10	IV	70	−12·4	„ 5941

No.	Type.	Dimensions in inches.	Material.	Locus. Block.	House.	Room.	Level (ft.).	Field No.
401	B	0·85 × 0·8 × 0·2	Steatite	9	IV	6	−12·4	DK 8249
402	B	0·92 × 0·92 × 0·26	,,	Alley west of Bl. 1			−12·4	,, 6713
403	B	0·96 × 0·96 × 0·25	,,	3	III	36	−12·4	,, 3818
404	B	0·8 × 0·58 × 0·25	,,	7	VII	57	−12·4	,, 7571
405	C	1·05 × 1·05 × 0·45	,,	6	I	1	−12·4	,, 4161
406	B	1·35 × 1·35 × 0·35	,,	7	V	78	−12·5	,, 7925
407	B	0·95 × 0·93 × 0·29	,,	Bet. Bls. 1 & 10 (I)			−12·5	,, 6422
408	B	0·8 × 0·8 × 0·28	,,	West of Bl. 1 (II)			−12·2	,, 8450
409	B	0·65 × 0·64 × 0·2	,,	8	II	23	−12·5	,, 8877
410	B	0·77 × 0·77 × 0·25	,,	7	V	66	−12·5	,, 8028
411	B	1·2 × 1·2 × 0·3	,,	1	VI	52	−12·6	,, 5307
412	B	1·47 × 0·62 × 0·4	,,	1	VII	35	−16·8	,, 5823
413	B	0·95 × 0·95 × 0·3	,,	1	I	21	−12·7	,, 6093
414	D	1·09 × 0·62 × 0·35	,,	1	I	16	−12·7	,, 6901
415	B	0·79 × 0·79 × 0·22	,,	Bet. Bls. 1 & 10 (I)			−12·7	,, 6596
416	B	1·5 × 0·75 × 0·47	,,	Lane, east of Bl. 1 (I)			−12·7	,, 7257
417	B	1·22 × 1·22 × 0·3	,,	3	VI	39	−12·8	,, 3790
418	B	0·82 × 0·81 × 0·2	,,	1	VII	38	−12·8	,, 5651
419	B	0·82 × 0·81 × 0·26	,,	1	III	1	−12·8	,, 5787
420	B	1·4 × 1·39 × 0·3	,,	1	II	7	−12·8	,, 5175
421	B	1·2 × 1·15 × 0·35	,,	1	VI	56	−12·8	,, 5494
422	B	2·3 × 2·3 × 0·65	,,	1	I	18	−12·8	,, 5419
423	B	0·86 × 0·85 × 0·3	,,	8	III	37	−12·9	,, 5717
424	B	1·01 × 1·0 × 0·29	,,	10	II	20	−12·9	,, 7062
425	B	1·08 × 0·7 × 0·31	,,	7	V	54	−12·9	,, 5697
426	B	1·11 × 1·1 × 0·34	,,	1	III	1	−12·9	,, 5821
427	B	1·06 × 1·06 × 0·32	,,	Bet. Bls. 7 & 9 (III)			−12·9	,, 8359
428	F	1·03 × 0·5 × 0·3	,,	Bet. Bls. I (V) & 10			−13·0	,, 5820
429	B	0·98 × 0·94 × 0·3	,,	9	VII	17	−12·0	,, 6380
430	B	1·6 × 1·55 × 0·33	,,	Bet. Bls. 1 (IV) & 10			−14·9	,, 6847
431	B	1·97 × 1·33 × 0·52	,,	9	VIII	18	−13·0	,, 8378
432	B	1·34 × 0·8 × 0·39	,,	Bet. Bls. 9 & 10 (III)			−13·0	,, 6624
433	B	0·88 × 0·87 × 0·28	,,	Alley west of Bl. 1			−13·0	,, 5859

No.	Type.	Dimensions in inches.	Material.	Locus.			Level (ft.).	Field No.
				Block.	House.	Room.		
434	—	2·55 × 0·2	Ivory	7	II	29	−13·0	DK 5081
435	B	0·98 × 0·99 × 0·28	Steatite	7	VIII	22	−13·0	„ 6229
436	B	1·72 × 1·67 × 0·49	„	7	I	15	−13·1	„ 6791
437	—	3·9	Ivory	1	II	9	−13·1	„ 5672
438	B	1·3 × 1·3 × 0·3	Steatite	5	I	2	−13·2	„ 3980
439	F	1·0 × 0·45 × 0·35	„	7	IX	32	−13·2	„ 8202
440	B	1·25 × 1·25 × 0·35	„	8	I	8	−13·2	„ 8841
441	B	1·28 × 1·25 × 0·35	„	Bet. Bls. 7 and 9 (VIII)			−13·2	„ 8159
442	B	1·0 × 0·97 × 0·3	„	9	VII	51	−13·2	„ 5900
443	B	0·87 × 0·86 × 0·26	„	3	VI	31	−13·2	„ 4137
444	B	0·61 × 0·61 × 0·2	„	9	II	11	−13·2	„ 8346
445	B	0·85 × 0·85 × 0·29	„		I	19	−13·3	„ 6390
446	B	1·25 × 1·15 × 0·3	„	Bet. Bls. 10 & 12			−13·3	„ 6357
447	B	0·87 × 0·87 × 0·27	„	7	I	15	−13·3	„ 6792
448	B	? × ? × 0·31	„	9	III	35	−13·3	„ 8643
449	C	0·65 × 0·65 × 0·3	„	7	V	78	−13·4	„ 7941
450	B	0·95 × 0·94 × 0·34	„	1	I	21	−13·4	„ 6658
451	B	1·08 × 1·02 × 0·32	„	Bet. Bls. 12 & 12A			−13·4	„ 5341
452	B	0·68 × 0·69 × 0·2	„	12	V	91	−13·4	„ 5539
453	B	1·2 × 0·84 × 0·35	„	Lane, east of Bl. 1 (I)			−13·4	„ 6664
454	B	0·5 × 0·5 × 0·16	„	10	IV	86	−13·4	„ 7342
455	B	1·34 × 1·34 × 0·37	„	Alley west of Bl. 1 (II)			−13·5	„ 6127
456	B	1·09 × 1·08 × 0·3	„	12	V	96	−13·5	„ 6550
457	B	0·77 × 0·77 × 0·25	„	12A	I	13	−13·5	„ 5640
458	B	0·8 × 0·8 × 0·22	„	12	I	11	−13·5	„ 5749
459	B	1·1 × 1·1 × 0·3	„	Bet. Bls. 11 & 12A			−13·5	„ 7145
460	B	0·73 × 0·73 × 0·22	„	Bet. Bls. 1 & 7			−13·6	„ 6753
461	F	1·42 × 0·55 × 0·46	„	Lane, east of Bl. 1 (I)			−13·6	„ 7349
462	B	0·96 × 0·76 × 0·3	„	Lane, east of Bl. 10 (II)			−13·6	„ 7913
463	B	1·1 × 1·1 × 0·35	„	10	II	26	−13·6	„ 7722
464	B	0·7 × 0·7 × 0·23	„	7	I	19	−13·6	„ 6153
465	B	1·15 × 1·11 × 0·25	,	9	VI	36	−13·7	„ 8254
466	B	1·02 × 1·0 × 0·27	„	2	I	8	−13·8	„ 9127

No.	Type.	Dimensions in inches.	Material.	Locus. Block.	House.	Room.	Level (ft.).	Field No.
467	B	1·1 × ? × 0·34	Steatite	12	V	91	−13·8	DK 5582
468	B	1·2 × 1·2 × 0·33	„	First St. (10)			−13·9	„ 8026
469	B	1·02 × 1·02 × 0·27	„	Bet. Bls. 1 & 10 (I)			−13·9	„ 6360
470	F	1·5 × 0·5 × 0·35	„	1	I	15	−13·9	„ 5708
471	B	1·25 × 1·0 × 0·29	„	9	VII	17	−13·9	„ 6429
472	B	0·82 × 0·82 × 0·3	„	5	I	4	−14·0	„ 4073
473	B	0·95 × 0·75 × 0·3	„	7	I	15	−14·0	„ 6266
474	B	0·87 × 0·85 × 0·2	„	2	III	16	−14·0	„ 4301
475	B	1·1 × 1·1 × 0·3	„	Lane, bet. Bls. 1 & 7			−14·0	„ 6777
476	B	1·08 × 1·07 × 0·35	„	1	III	2	−14·0	„ 5709
477	F	1·42 × 0·62 × 0·3	„	3	IV	45	−14·1	„ 3755
478	B	1·2 × 1·2 × 0·3	„	4	—	13	−14·1	„ 4967
479	B	0·95 × 0·95 × 0·2	Marble	12A	II	21	−14·3	„ 7313
480	B	1·15 × 1·12 × 0·29	Steatite	3	VI	31	−14·4	„ 4151
481	B	1·15 × 1·15 × 0·39	„	Lane, east of Bl. 1 (I)			−14·4	„ 7137
482	—	1·81	Ivory	7	V	54	−14·4	„ 7366
483	B	1·18 × ? × 0·33	Steatite	7	V	66	−14·4	„ 8062
484	B	0·63 × 0·61 × 0·21	„	1	V	46	−14·5	„ 6385
485	F	1·17 × 0·47 × 0·3	„	1	III	17	−14·5	„ 5156
486	B	1·15 × 1·15 × 0·44	„	Bet. Bls. 4 & 5			−14·5	„ 4206
487	B	1·6 × ? × 0·5	„	1	III	4	−14·6	„ 5778
488	A	1·0 × 0·59	„	4	—	12	−14·5	„ 5828
489	B	1·21 × 1·08 × 0·38	„	First St. (21)			−14·5	„ 8072
490	B	0·89 × 0·85 × 0·24	„	Bet. Bls. 1 & 10 (I)			−14·7	„ 6633
491	B	1·06 × 1·03 × 0·41	„	First St. (15)			−14·7	„ 13006
492	C	1·18 × 1·18 × 0·25	„	7	IV	72	−14·7	„ 8204
493	B	0·99 × 0·99 × 0·22	„	7	III	48	−14·8	„ 8253
494	B	0·97 × 0·95 × 0·21	„	Lane, bet. Bls. 10 & 12			−14·8	„ 7734
495	B	0·81 × 0·81 × 0·21	„	2	II	23	−14·8	„ 4337
496	B	? × ? × 0·3	„	7	VIII	28	−14·8	„ 6003
497	?	1·05 × 0·9 × 0·52	„	7	III	43	−14·8	„ 8250
498	B	0·8 × 0·78 × 0·27	„	Bet. Bls. 1 (III) & 2			−14·8	„ 6838
499	F	1·8 × 0·46 × 0·35	„	2	I	7	−14·8	„ 9187

No.	Type.	Dimensions in inches	Material.	Locus. Block.	House.	Room.	Level (ft.)	Field No.
500	H	1·1 × 0·21	Steatite	Bet. Bls. 1 & 7			– 14·8	DK 6844
501	B	1·1 × 0·9 × 0·29	„	4	—	12	– 14·9	„ 5852
502	B	0·67 × 0·65 × 0·25	„	1	I	22	– 14·9	„ 7676
503	B	1·07 × 1·05 × 0·3	„	1	IV	61	– 15·0	„ 5459
504	B	0·85 × 0·85 × 0·25	„	10	I	5	– 15·0	„ 5925
505	D	0·75 × 0·36 × 0·1	„	1	II	32	– 15·0	„ 5671
506	B	0·95 × 0·95 × 0·3	„	1	IV	73	– 15·1	„ 5533
507	B	1·15 × 1·12 × 0·3	„	2	I	10	– 15·1	„ 4313
508	D	0·8 × 0·4 × 0·18	„	First St. (10)			– 15·1	„ 8089
509	A	0·8	„	1	VIII	63	– 15·1	„ 5849
510	I	1·0 × 0·86 × 0·21	„	9	VI	34	– 15·2	„ 8321
511	B	1·2 × 1·2 × 0·34	„	Bet. 1 & 10 (I)			– 15·2	„ 6689
512	B	1·04 × 1·04 × 0·25	„	1	V	47	– 15·3	„ 6764
513	B	1·05 × 1·04 × 0·3	„	Bet. Bls. 12 & 12A			– 15·3	„ 5392
514	B	1·0 × 1·0 × 0·27	„	Bet. Bls. 12 & 12A			– 15·3	„ 5368
515	F	0·85 × 0·4 × 0·26	„	1	IV	30	– 15·3	„ 5413
516	B	0·5 × 0·47 × 0·21	„	1	I	16	– 15·3	„ 8864
517	B	0·78 × 0·77 × 0·2	„	12	V	92	– 15·3	„ 5601
518	B	1·1 × 1·1 × 0·26	„	3	IV	45	– 15·4	„ 7221
519	B	1·2 × 1·2 × 0·3	„	7	V	66	–15·4	„ 8104
520	B	0·64 × 0·64 × 0·16	Silver	12	I	4	– 15·4	„ 8563
521	B	1·23 × 1·2 × 0·27	„	Bet. Bls. 1 (V) & 10			– 15·5	„ 5935
522	B	1·26 × 1·25 × 0·34	„	3	III	26	– 15·5	„ 7033
523	B	0·71 × 0·71 × 0·2	„	7	IX	31	– 15·5	„ 8023
524	B	1·32 × 1·27 × 0·33	„	First St. (21)			– 15·6	„ 7708
525	B	0·61 × 0·6 × 0·15	„	1	I	16	– 15·7	„ 7052
526	D	0·94 × 0·4 × 0·32	„	5	III	8	– 15·7	„ 7694
527	B	0·66 × 0·66 × 0·19	„	9A	V	67	– 15·7	„ 8406
528	D	1·5 × 0·73 × 0·4	„	9A	V	75	– 15·7	„ 6698
529	B	1·29 × 1·0 × 0·33	„	1	V	45	– 15·8	„ 7512
530	B	1·51 × 1·5 × 0·44	„	1	I	74	– 15·8	„ 5605
531	B	1·1 × 0·74 × 0·26	„	3	VI	47	– 15·9	„ 7150
532	B	0·95 × 0·95 × 0·3	„	Bet. Bls. 11 & 12A			– 15·9	„ 4907

No.	Type.	Dimensions in inches.	Material.	Locus.			Level (ft.)	Field No.
				Block.	House.	Room.		
533	B	1·1 × 1·1 × 0·28	Silver	First St. (10)			– 15·9	DK 8168
534	B	1·15 × 1·15 × 0·3	„	First St. (10)			– 15·9	„ 8166
535	B	1·03 × 1·02 × 0·28	„	Bet. Bls. 1 (IV) & 10			– 15·9	„ 5969
536	B	1·12 × 1·15 × 0·28	„	7	VIII	28	– 15·9	„ 6002
537	F	1·64 × 0·55 × 0·32	„	Bet. Bls. 10A and 11			– 23·6	„ 7172
538	B	1·04 × 1·04 × 0·33	„	1	VI	52	– 16·0	„ 7190
539	B	1·31 × 1·31 × 0·35	„	7	III	43	– 16·1	„ 8242
540	B	0·69 × 0·69 × 0·25	Steatite	Lane, east of Bl. 1 (I)			– 16·1	„ 3889
541	F	1·41 × 0·49 × 0·33	„	Lane, east of Bl. 1 (I)			– 16·1	„ 7406
542	D	1·05 × 0·73 × 0·46	„	12A	II	18	–16·2	„ 7269
543	B	1·1 × 1·1 × 0·3	„	10	III	55	– 16·2	„ 6210
544	D	1·05 × 0·73 × 0·46	„	12A	II	18	– 16·2	„ 7269
545	B	0·95 × 0·82 × 0·29	„	8	II	18	– 16·2	„ 9111
546	B	1·01 × 1·0 × 0·33	„	1	IV	24	– 16·3	„ 6125
547	B	0·76 × 0·76 × 0·19	„	Bet. Bls. 1 (III) & 7			– 16·3	„ 6448
548	B	1·05 × 1·05 × 0·34	„	4	—	13	– 16·4	„ 5707
549	B	0·99 × 0·98 × 0·32	„	Bet. Bls. 11 & 12A			– 16·4	„ 5418
550	E	0·7 × 0·7 × 0·15	„	Bet. Bls. 11 & 12A			– 16·4	„ 5414
551	B	0·77 × 0·77 × 0·28	Faience	Bet. Bls. 9A & 12A			– 16·4	„ 5573
552	B	0·91 × 0·9 × 0·28	„	1	I	74	– 16·5	„ 5636
553	B	0·91 × 0·9 × 0·28	„	1	I	74	– 16·5	„ 5636
554	B	1·0 × 0·98 × 0·22	„	1	VIII	63	– 16·5	„ 5875
555	B	1·07 × 1·07 × 0·36	„	Lane, east of Bl. 1 (I)			– 16·5	„ 7333
556	B	1·1 × 1·1 × 0·3	„	7	V	54	– 16·5	„ 7790
557	B	0·75 × 0·71 × 0·21	„	7	III	46	– 16·5	„ 8279
558	B	1·03 × 0·65 × 0·34	„	2	IV	20	– 16·5	„ 7447
559	B	0·65 × 0·4 × 0·33	„	2	IV	20	– 16·5	„ 7448
560	B	0·77 × 0·75 × 0·28	„	7	VII	57	– 16·5	„ 7570
561	B	1·36 × 1·36 × 0·35	„	9A	V	75	– 16·6	„ 7280
562	B	1·2 × 1·16 × 0·3	„	9	VIII	14	– 16·7	„ 6795
563	B	0·97 × 0·97 × 0·3	„	Bet. Bls. 11 & 12A			– 16·7	„ 5432
564	B	0·9 × 0·9 × 0·22	„	7	VIII	53	– 16·8	„ 8463
565	B	0·5 × 0·5 × 0·1	„	7	IV	49	– 16·8	„ 8218

No.	Type.	Dimensions in inches.	Material.	Locus. Block.	House.	Room.	Level (ft.)	Field No.
566	B	? × ? × 0·46	Faience	Bet. Bls. 10 & 12			–16·9	DK 5703
567	B	1·0 × 1·0 × 0·27	„	12	V	89	–16·9	„ 5967
568	D	1·0 × 0·48 × 0·39	„	Bet. Bls. 10 & 12			–16·9	„ 5702
569	B	0·98 × 0·98 × 0·26	„	7	IX	31	–16·9	„ 8223
570	B	1·0 × 0·65 × 0·26	„	Bet. Bls. 12 & 12A			–16·9	„ 5446
571	B	0·75 × 0·72 × 0·25	„	1	III	17	–16·9	„ 7268
572	B	1·1 × 1·1 × 0·3	„	First St. (6)			–17·0	„ 8212
573	B	1·25 × 1·25 × 0·35	Steatite	5	I	3	–17·0	„ 7538
574	B	1·15 × 1·15 × 0·31	„	10	IV	86	–17·0	„ 7135
575	?	1·23 × 0·8 × 0·4	„	12	V	96	–17·1	„ 6898
576	B	1·31 × 1·31 × 0·28	„	1	VI	52	–17·2	„ 9069
577	B	0·85 × 0·83 × 0·25	„	7	IV	72	–17·2	„ 8209
578	B	1·56 × 1·56 × 0·36	„	1	I	15	–17·3	„ 7263
579	F	0·95 × 0·46 × 0·33	„	Lane, east of Bl. 1 (I)			–17·4	„ 7465
580	B	0·96 × 0·95 × 0·23	„	12	V	92	–17·4	„ 5891
581	B	0·95 × 0·95 × 0·3	„	Bet. Bls. 7 & 9 (III)			–17·4	„ 8528
582	B	0·78 × 0·78 × 0·25	„	Bet. Bls. 1 (III) & 2			–17·4	„ 7464
583	B	1·25 × 1·25 × 0·4	„	3	III	36	–17·4	„ 7402
584	B	1·2 × 1·2 × 0·37	„	11	III	41	–17·6	„ 7820
585	B	0·9 × 0·85 × 0·25	„	7	IV	49	–17·6	„ 8248
586	E	0·65 × 0·61 × 0·17	Faience	First St. (22)			–17·6	„ 8213
587	C	1·32 × 1·32 × 0·39	Steatite	2	IV	22	–17·6	„ 7372
588	B	1·11 × 1·11 × 0·3	„	4	—	16	–17·7	„ 6381
589	B	1·33 × 1·33 × 0·4	„	1	I	72	–17·7	„ 6335
590	B	1·4 × 1·4 × 0·33	„	1	I	20	–17·7	„ 5848
591	B	0·81 × 0·81 × 0·25	„	First St. (21)			–17·8	„ 7601
592	B	0·75 × 0·75 × 0·25	„	7	IV	71	–17·9	„ 8287
593	B	1·12 × 1·12 × 0·3	„	East of Bl. 1 (I)			–17·8	„ 7415
594	B	1·0 × 1·0 × 0·29	„	7	VIII	52	–17·8	„ 8539
595	B	1·3 × 1·3 × 0·3	„	10	I	5	–17·8	„ 7875
596	B	1·92 × 1·15 × 0·49	„	Lane, east of Bl. 9 (VI)			–17·9	„ 8422
597	B	1·13 × 1·08 × 0·3	„	1	III	2	–17·9	„ 8946
598	B	1·4 × 1·36 × 0·42	„	10	III	67	–18·0	„ 6531

No.	Type.	Dimensions in inches.	Material.	Locus. Block.	House.	Room.	Level (ft.)	Field No.
599	F	1·4 × 0·62 × 0·45	Steatite	1	I	17	–18·0	DK 7288
600	B	0·56 × 0·56 × 0·23	Faience	Bet. Bls. 10 (III) & 12			–18·0	,, 6140
601	B	0·97 × 0·96 × 0·29	Steatite	1	IV	63	–18·0	,, 5641
602	B	0·73 × 0·73 × 0·23	,,	Bet. Bls. 10A & 12			–18·1	,, 6209
603	F	1·53 × 0·59 × 0·4	,,	2	IV	15	–18·1	,, 5567
604	J	0·7 × 0·15	,,	7	V	54	–18·1	,, 7810
604B	B	0·83 × 0·83 × 0·3	,,	10A	—	7	–18·1	,, 7136
605	B	1·38 × 1·38 × 0·45	,,	1	I	75	–18·1	,, 8856
606	B	1·2 × 1·07 × 0·28	,,	1	VII	35	–18·2	,, 9114
607	B	0·72 × 0·7 × 0·24	,,	3	IV	29	–18·2	,, 6704
608	B	0·72 × 0·72 × 0·22	,,	Bet. Bls. 1 (IV) & 10			–18·2	,, 6886
609	B	0·85 × 0·85 × 0·2	,,	11	III	34	–18·3	,, 6827
610	B	? × ? × 0·3	,,	1A	—	58	–18·3	,, 8472
611	B	1·15 × 1·15 × 0·32	,,	1	I	21	–18·3	,, 8963
612	B	1·0 × 1·0 × 0·3	,,	Bet. Bls. 10 & 12			–18·4	,, 6861
613	B	0·96 × 0·92 × 0·23	,,	Bet. Bls. 1 & 10 (I)			–18·4	,, 6798
614	B	1·28 × 1·28 × 0·35	,,	1	III	17	–18·4	,, 8984
615	B	1·2 × 1·2 × 0·28	,,	9A	V	75	–18·4	,, 7469
616	B	1·92 × 1·92 × 0·56	,,	1	I	74	–18·5	,, 8916
617	B	0·95 × 0·93 × 0·36	,,	1	I	21	–18·5	,, 8962
618	B	0·86 × 0·86 × 0·25	,,	First St. (7)			–18·6	,, 8236
619	E	0·65 × 0·65 × 0·17	Faience	Bet. Bls. 5 and 6			–18·6	,, 7756
620	B	0·86 × 0·85 × 0·3	Steatite	1	I	74	–18·6	,, 6267
621	B	1·07 × 0·95 × 0·24	,,	Bet. Bls. 1 & 7			–18·8	,, 7115
622	B	0·97 × 0·97 × 0·35	,,	1	III	1	–18·9	,, 8930
623	B	0·75 × 0·7 × 0·21	,,	7	III	44	–19·1	,, 8869
624	—	0·8 × 0·3	Pottery	Bet. Bls. 1 & 10 (I)			–19·1	,, 7116
625	B	0·79 × 0·79 × 0·23	Steatite	Bet. Bls. 11 & 12			–19·2	,, 5710
626	B	1·47 × 1·47 × 0·36	,,	First St. (13)			–19·2	,, 8553
627	B	? × ? × 0·4	,,	Bet. Bls. 11 & 12A			–19·3	,, 5215
628	B	1·41 × 1·39 × 0·31	,,	10	IV	83	–19·3	,, 7077
629	B	1·05 × 1·05 × 0·35	,,	1	I	82	–19·3	,, 8985
630	B	0·95 × 0·95 × 0·3	,,	12	V	96	–19·4	,, 8629

No.	Type.	Dimensions in inches.	Material.	Locus. Block.	House.	Room.	Level (ft.)	Field No.
631	C	0·8 × 0·8 × 0·22	Steatite	3	VI	47	– 19·4	DK 7374
632	B	0·83 × 0·82 × 0·28	,,	Bet. Bls. 12 & 12A			– 19·5	,, 5537
633	B	0·86 × 0·86 × 0·26	,,	2	I	7	– 19·6	,, 9283
634	B	0·85 × 0·86 × 0·25	,,	Bet. Bls. 11 & 12A			– 19·8	,, 5256
635	B	0·97 × 0·97 × 0·29	,,	1	II	63	– 19·8	,, 9002
636	C	0·92 × 0·92 × 0·36	,,	First St. (21)			– 19·9	,, 8519
637	B	0·75 × 0·76 × 0·14	,,	Bet. Bls. 12 & 12A			– 19·9	,, 5554
638	B	0·65 × 0·64 × 0·2	,,	4	—	10	– 20·0	,, 6751
639	B	1·0 × 0·98 × 0·28	,,	1	VIII	63	– 20·0	,, 6068
640	B	1·27 × 0·72 × 0·33	,,	Bet. Bls. 5 & 7 (VI)			– 20·0	,, 6842
641	B	1·22 × 1·22 × 0·31	,,	9A	V	75	– 20·0	,, 7597
642	B	0·78 × 0·77 × 0·26	,,	11	III	26	– 20·0	,, 5580
643	D	1·2 × 0·6 × 0·46	,,	Lane, east of Bl. 1 (I)			– 20·0	,, 9255
644	B	1·18 × 1·16 × 0·31	,,	7	II	88	– 20·1	,, 8703
645	B	1·24 × 1·2 × 0·3	,,	12	V	95	– 20·2	,, 7287
646	B	0·9 × 0·9 × 0·26	,,	1	I	82	– 20·2	,, 9085
647	B	0·81 × 0·81 × 0·27	,,	First St. (1)			– 20·3	,, 8494
648	B	1·3 × 1·25 × 0·27	,,	7	I	19	– 20·4	,, 8473
649	B	0·7 × 0·7 × 0·19	,,	4	—	16	– 20·5	,, 6423
650	B	0·75 × 0·75 × ?	,,	7	VIII	28	– 20·6	,, 8756
651	B	1·53 × 1·52 × 0·32	,,	5	I	2	– 20·6	,, 7462
652	B	0·77 × 0·77 × 0·22	,,	Bet. Bls. 1 (I) & 2			– 20·6	,, 9343
653	B	1·6 × 1·6 × 0·43	Paste	3	VI	40	– 20·7	,, 7825
654	F	2·17 × 0·59 × 0·4	Steatite	1	IV	61	– 20·7	,, 9134
655	B	1·19 × 1·18 × 0·34	,,	Bet. Bls. 10 (III) & 12			– 20·7	,, 7066
656	B	0·86 × 0·86 × 0·23	,,	1	III	2	– 20·9	,, 9086
657	B	1·06 × 1·05 × 0·28	,,	Bet. Bls. 10A & 11			– 20·9	,, 6625
658	D	1·05 × 0·7 × 0·44	Limestone	1	III	4	– 21·0	,, 9050
659	B	? × ? × 0·28	Steatite	First St. (21)			– 21·1	,, 8544
660	B	1·07 × 1·06 × 0·21	,,	1	III	1	– 21·1	,, 9049
661	I	1·75 × 0·5 × 0·2	,,	First St. (22)			– 21·2	,, 8440
662	B	0·53 × 0·53 × 0·11	,,	First St. (22)			– 21·3	,, 8478
663	B	0·9 × 0·9 × 0·2	,,	7	III	51	– 21·3	,, 8957

No.	Type.	Dimensions in inches.	Material.	Locus Block.	Locus House.	Locus Room.	Level (ft.)	Field No.
664	B	0·9 × 0·85 × 0·2	Steatite	First St. (6)			-21·3	DK 8650
665	B	? × ? × 0·3	,,	First St. (21)			-21·4	,, 8479
666	B	1·21 × 1·21 × 0·31	,,	4	—	16	-21·6	,, 8923
667	B	1·27 × 1·05 × 0·29	,,	First St. (1)			-21·7	,, 8764
668	F	0·95 × 0·78 × 0·29	,,	First St. (18)			-21·8	,, 8411
669	B	1·15 × 1·14 × 0·31	,,	Bet. Bls. 11 & 12			-21·8	,, 6934
670	B	0·6 × 0·6 × 0·2	,,	7	VIII	16	-21·9	,, 8853
671	B	? × ? × 0·25	,,	First St. (21)			-22·0	,, 8666
672	B	? × ? × 0·3	,,	Bet. Bls. 5 & 7 (VI)			-22·2	,, 7321
673	B	0·86 × 0·79 × 0·19	,,	Bet. Bls. 10A & 11			-22·6	,, 7289
674	B	1·2 × 1·18 × 0·25	,,	First St. (12)			-22·6	,, 8634
675	B	0·96 × 0·96 × 0·32	,,	First St. (1)			-22·8	,, 8792
676	B	1·28 × 1·28 × 0·4	,,	7	I	3	-23·4	,, 9475
677	B	1·13 × 1·1 × 0·25	,,	Bet. Bls. 10 & 12			-23·6	,, 7040
678	B	0·9 × 0·87 × 0·3	,,	Bet. Bls. 10 & 12			-23·7	,, 7050
679	F	1·32 × 0·55 × 0·5	,,	Bet. Bls. 10 & 12			-23·7	,, 7061
680	B	1·34 × 1·34 × 0·36	,,	Bet. Bls. 10A & 12			-23·8	,, 7147
681	B	1·34 × 0·98 × 0·35	,,	Bet. Bls. 10A & 12			-24·0	,, 6700
682	F	0·7 × 0·49 × 0·41	,,	1A	—	89	-24·4	,, 5831
683	D	0·95 × 0·28 × 0·12	,,	Bet. Bls. 1 & 10 (I)			-25·1	,, 9427
684	B	0·7 × 0·7 × 0·18	,,	7	I	14	-25·4	,, 9506
685	B	1·32 × 1·32 × 0·4	,,	7	I	3	-28·9	,, 9563
686	B	1·18 × 0·87 × 0·36	,,	7	I	3	-30·5	,, 9713
686A	B	1·6 × 1·55 × 0·33	,,	Bet. Bls. 1 (IV) & 10			-14·9	,, 6847
686B	B	0·97 × 0·95 × 0·21	,,	Bet. Bls. 10 & 12			-14·8	,, 7734
686C	B	1·38 × 1·38 × 0·38	,,	Bet. Bls. 9 (VIII) & 10			-18·1	,, 7665
687	B	1·0 × 0·97 × 0·26	,,	North of DK Area (164)			-16·0	DK. H. 10
688	F	0·8 × 0·6 × 0·3	,,	,,	,,	,,	-17·8	,, 7
689	B	1·5 × 1·46 × 0·37	,,	,,	,,	,,	-18·5	,, 31
690	B	1·65 × 0·77 × 0·39	,,	,,	,,	,,	-19·1	,, 64
691	B	1·22 × 1·22 × 0·36	,,	,,	,,	,,	-19·3	,, 36
692	B	0·83 × 0·80 × 0·26	,,	,,	,,	,,	-22·1	,, 66
693	B	0·9 × 0·9	,,	Surface				SD 2823

No.	Type.	Dimensions in inches.	Material.	Locus.			Level (ft.)	Field No.
				Block.	House.	Room.		
694	B	1·4 × 1·4 × 0·36	Steatite	8	—	4	+7·3	SD 2850
695	B	0·75 × 0·75 × 0·25	„	Main St. Bet. Bls. 1 & 6			+2·1	„ 2735
696	B	1·10 × 1·10 × 0·2	„	Main St. Bet. Bls. 1 & 6			+2·1	„ 2697
697	F	1·0 × 0·45 × 0·29	„	Main St. Bet. Bls. 1 & 6			+1·2	„ 3054
698	B	1·05 × 1·03 × 0·3	„	1	—	67	+0·1	„ 3058
699	D	1·2 × 0·6 × 0·25	„	Surface				„ 3162
700	B	0·78 × 0·78 × 0·25	„	6	—	23	−1·5	„ 3280
701	B	0·9 × 0·9 × 0·28	„	Street Bet. Bls. 1 & 2			−1·1	„ 3192
702	B	0·18 × 0·15 × 0·38	„	6	—	13	−0·8	„ 3226
703	B	0·49 × 0·48 × 0·15	„	10	—	7	−1·1	„ 3130
704	B	1·1 × 1·1 × 0·4	„	6	—	30	−0·7	„ 3295

CHAPTER XII.

HOUSEHOLD OBJECTS, TOOLS AND IMPLEMENTS.

Querns (*Pls. CIV, 13, 14; CVIII, 31, 34; CIX, 36*).

Saddle-querns, especially those of the type illustrated in Pl. CIV, 13, are found in considerable numbers at all levels, and they seem to have been the only means in use for grinding cereals. As a rule, they were roughly made of hard, gritty, igneous rock or sandstone and mostly show signs of hard usage. As their bases are usually convex, they must have been set in the earth or in mud to prevent their rocking. Two main types have been found; those on which another smaller stone was pushed or rolled to and fro, and others with which a second stone was used as a pounder, eventually making a large cavity in the nether stone. Querns of the former type were probably used solely for grain; the second type (Pl. CIV, 14) possibly only for pounding herbs and spices for making curries. In fact, stones of this latter type are dubbed "curry stones" by our workmen and our cook asked for the loan of one from the museum for use in the kitchen.

Plate CIV.—No. 13 (DK 10884). Averages 18·8 ins. long by 9 ins. wide, and is 3·5 ins. high at the ends and 3 ins. in the middle. Material: light grey, siliceous sandstone. The base was very roughly trimmed and the upper surface shows signs of hard and constant use. The rubbing stone was missing. Locus: Bl. 8A, rm. 44. Level: — 6·1 ft.

No. 14 (DK 5714). Averages 17·5 ins. long by 10·4 ins. wide by 8·5 ins. high. Material: a greenish-grey, gritty stone which appears to be of igneous origin. Roughly made and irregular in shape. A deep cavity was worn in it by a pounder of either wood or stone.[1] Locus: Loop Lane, between Bls. 12 and 12A. Level: — 8·4 ft.

Plate CVIII.—No. 31 (DK 5587). Averages 15·8 ins. long by 8·6 ins. at the widest part. Material: hard crystalline sandstone, light brown, veined with grey. Very worn. Its concave portion is stained red, as if it had been used for rubbing down red ochre. The pestle is a hemispherical piece of cherty limestone, 0·4 in. in diameter and 1·95 ins. high, which was dressed into shape with a pointed tool. Locus: Bl. 1 (Palace), western court (63). Level: — 18·1 ft.

No. 34 (DK 5604). Averages 20·75 ins. long by 3·8 ins. high at the ends. Material: hard grey sandstone, veined with purple. The rounded base was roughly hacked into shape, and the top grooved both laterally and longitudinally. The rubbing-stone is regular in shape with a flat base. It is hard red quartzite, and measures 10·75 ins. long by 2·4 ins. wide by 3·22 ins. high. Locus: Bl. 1 (Palace), western court (63). Level: — 18 ft.

Plate CIX.—No. 36 (DK 6582). 18·25 ins. long by 8·6 ins. wide by 4·4 ins. high. Material: dark-grey, crystalline sandstone. Its flat surface shows little evidence of use. The base is rounded and roughly dressed, and the whole stone is better shaped than most. Locus: Bl. 10A, rm. 5. Level: — 21·7 ft.

[1] Wooden pestles are in general use in the Panjāb at the present day, and even this comparatively soft material wears deep cavities in the curry-stones.

Querns of the type seen in Pl. CIV, 13, are found practically all over the world from earliest times to the present day. They occur in the lowest levels of Ur and Susa, in the earliest culture at Anau, in Danubian I settlements,[1] in Neolithic England, Palestine, America, etc. ; and in every case they take much the same form, and were or are used in the same way. Indeed a very interesting pottery figure has been found by Mr. Vats at Harappā,[2] a woman using a saddle-quern in very much the same way as Egyptian figures of the Third to Twelfth Dynasties.[3] [4] No example of a revolving quern has been found either at Mohenjo-daro or Harappā, but in view of its late occurrence in the world's history its appearance at such an early date in the Indus valley would hardly be expected.

Mortars (*Pls. CIV, 24 ; CVII, 31*).

No. 24 in Pl. CIV (DK 4826). Greatest height 9·7 ins., diameter 1 ft. 2 ins. Material: light-grey, crystalline sandstone. Cylindrical in shape, and roughly dressed with a pointed pick. Base fairly flat with a central, shallow, rounded depression, 2·92 ins. in diameter by 0·9 ins. deep, which shows no signs of rubbing. In the middle of the somewhat uneven top there is a deep, cup-like hole, 5 ins. by 4·15 ins. in depth, with a rounded base. This hole bears definite evidence of wear which was probably caused by a pestle. Around this central hole there are no less than three other considerably shallower ones of varying diameter.[5]

There can be no doubt, I think, that this stone was used as a mortar. The three outer holes were possibly used for a preliminary pounding of ingredients, perhaps for curries, which were subsequently pounded together in the central hole. It has been suggested that this stone was used in the process of beating metal vessels into shape, but its hard, rough and gritty nature, coupled with the small sizes of the holes, would preclude its use for this purpose. Locus: Bl. 12, ho. I, rm. 10. Level: – 7·2 ft.

Stone rubber (*Pl. CIX*).

No. 45 (DK 9762). 2·6 ins. long by 1·45 ins. wide by 1·3 ins. high. Material: a hard, white, crystalline stone. Upper surface rounded ; base flat. This stone which is evidently a rubber may have been used in preparing skins. Locus: Fore Lane, south of Bl. 10, ho. I. Level: – 31 ft.

Hammer-stone (*Pl. CXI, 80*).

No. 80 (DK 8419). This spherical object, 2·88 ins. in diameter, is of flint. It is probably a natural nodule that was trimmed over with some pointed tool to serve as a hammer-stone, for it had been badly knocked about here and there. Such stones as this are fairly common at all levels at Mohenjo-daro. Locus: Bl. 7, ho. VIII, rm. 25. Level: – 19·7 ft.

[1] Childe, *Danube in Prehistory*, p. 45.

[2] *Ann. Rep. Arch., Surv. Ind.* (1926-7), pl. XXIII, c.

[3] J. de Morgan, *Préhistoire Orientale*, II, p. 100, fig. 118(1).

[4] It would be interesting to know if this type of quern was used simply for grinding or whether the grain was mixed with water as it was ground, as is done in Nubia at the present day and apparently also was in ancient Egypt. The latter process produces dough ready for baking. Garstang, *Burial Customs of Ancient Egypt*, p. 128, fig. 126.

[5] Von P. Meriggi identifies another kind of mortar in "Zur Indus-Schrift", *Zeitschrift des Deutschen Morgenlandischen Gesellschaft* (1934), B. 12. pts. 3. 4. pp. 198-241.

Grinders (*Pls. CIV, 20 ; CVII, 30 ; CVIII, 27*).

No. 20 in Pl. CIV (DK 4895) (see also Pl. CVII, 30). Height 7 ins., diameter 1 ft. 4 ins. Material: hard, gritty, light-grey stone.[1] In the middle of the upper surface there is a small cup-like hole, 3·7 ins. in diameter by 1·7 ins. deep, whose base is slightly rounded. This hole is worn round the sides, but not at the bottom. In the flat base of the stone another hole was begun which was perhaps intended to meet the other. This object is well made and shaped, save for the top sloping slightly, and it was dressed down with a pointed tool. Locus: Bl. 1, ho. VII, rm. 57. Level: – 8·8 ft.

It is just possible that this was a door-socket, though stone door-sockets of any size are rarely found. It is, moreover, almost too carefully shaped for such a purpose; nor is the material suitable. It is also improbable that this stone was the lower member of a rotary quern, which, as stated above, is unknown either at Mohenjo-daro or Harappā, or in any other part of the world at that early period.[2] Nor does it seem probable that this was an unfinished ring-stone, such as we have found in previous years;[3] the latter are invariably made of limestone or alabaster.

I would suggest that this object is an unfinished grinder intended to be used in a vertical position on a fixed or revolving axle, as are the stone wheels used at the present day in many parts of India to grind substances ranging from hard seeds to mortar. For this purpose, the gritty nature of the stone would have made it well suited.

No. 27 in Pl. CVIII (DK 5725) is exceptionally well made, evidently for some special purpose.[4] It measures 6·8 ins. long by 3·75 ins. wide in the centre by 1·65 ins. high. Material: gritty, grey sandstone. It stands on four very short legs and its flat top shows no wear nor polish. The concave sides were perhaps intended to accommodate jars into which the ground material might drop. Locus: Bl. 12A, ho. I, rm. 15. Level: – 12·9 ft.

Palettes (*Pls. CIV, 8; CVI, 26; CIX, 25*).

Only one definite palette of Late date (Pl. CIV, 8) (DK 10729) has been found since 1927. It is a natural flat pebble of dark grey, semi-hard stone, 2·8 ins. long by 2·56 ins. wide by 0·5 in. thick. Both faces are slightly hollowed by use and on one side there are brown stains which may be due to the pigment that was rubbed down upon it. Locus: First St. (24). Level: – 4·3 ft.

No. 26 in Pl. CVI (DK 11387) is a rectangular pottery plaque, measuring 1·94×1·32×0·49 ins. The base is flat, and the upper surface very slightly recessed to a depth of 0·06 in. Possibly this is a small palette, though it is not stained. Locus: Bl. 14, ho. IV, rm. 26. Level: – 7·4 ft.

No. 37 in Pl. CIX (DK 5584) is a plain circular disc, 2·99 ins. in diameter and 0·4 in. thick, of soft, white alabaster, slightly convex on one side and concave on the other. It may have been used as a palette, though the nature of the stone would hardly permit of hard grinding being done upon it. Locus: Bl. 10, ho. I, rm. 5. Level: – 12·6 ft.

[1] Minute fossil shells are visible here and there in the stone.

[2] The large hole in the centre also makes it unlikely that this stone was used for this purpose.

[3] Marshall, *Mohenjo-daro and the Indus Civilization*, pl. CXXX, 7, 9, 30.

[4] *Cf.* a very similar object, *op. cit.*, pl. CLVII, 54.

Toilet-stands (?) (*Pls. CVIII, 28 ; CIX, 23*).

No. 28 in Pl. CVIII (DK 6884) is a broken stand of cream-coloured limestone, 2·43 ins. long by 2·22 ins. wide by 1·13 ins. high. It is well made with all the angles carefully smoothed off, but two legs and a corner are missing. It is hard to say for what exact purpose this stand was used; it certainly is not a palette as it is not stained. Possibly it was employed in connection with the toilet. Locus: Loop Lane, between Bls. 11 and 12. Level: — 22·8 ft.

No. 23 in Pl. CIX (DK 9334) is very similar in shape, but it was made of pottery and nothing like so carefully finished; indeed, it was clearly trimmed with a knife after the preliminary shaping. Both sides and top are slightly concave. It is 5·3 ins. long by 3·6 ins. wide, and is now 1·18 ins. high. Parts of all four legs are missing. Locus: Lane between Bls. 2 and 3. Level: — 18·5 ft.

Flint Flakes and Cores (*Pls. CV, 17, 18 ; CVII, 24–8 ; CVIII, 20*).

Curiously enough, we have in recent years unearthed comparatively few flint flakes or the cores from which they were struck. Those that have been found, whether in the early or later levels, are simple, long, thin, rectangular specimens, trapezoidal in section, with untouched edges and only occasionally with the bulb of percussion at the end. In a great number of cases the bulb seems to have been deliberately removed by snapping it off, with the idea of making the blade as uniform as possible throughout its length. With the exception of No. 26 in Pl. CVII, none of the blades show any polish by use, nor evidence of having been fixed in a handle. Doubtless these ribbon-flakes were mostly used as knives ; but that they sometimes served as scrapers is proved by the worn edge of Nos. 24 and 26 in Pl. CVII. One flake (Pl. CV, 17) appears to have been used as a polisher, possibly for wood. No. 28 in Pl. CVII, and other flakes seem never to have been used.

The flints from which these flakes were struck were possibly prepared where they were found and imported as cores.[1] Though possibly some practice was required in the preparation of the core itself, no great degree of skill would have been necessary to strike a flake from the core. M. M. Cabrol and Coutier have found by actual experiment that a wooden mallet or hammer is sufficient for the purpose.[2]

The source of the flint used at Mohenjo-daro was probably the limestone outcrops at Sukkur, some 56 miles away, though perhaps it was also procured from the Khīthar Range which is nearer though less accessible. No arrowheads nor weapons of flint have as yet been found, and though this has been termed a Chalcolithic civilization owing to the presence of these long flint flakes, copper and bronze had already practically entirely ousted stone.[3] Indeed, it can be advanced as an argument for the definitely late Chalcolithic age of the site that even these simple flakes are far from common.

[1] See Burton in *Sind Revisited*, vol. II, p. 217, who quotes *Proceedings Asiatic Society of Bengal*, July 1875, pp. 134-6.

[2] *Bulletin de la Societe prehistorique Francaise*, XXVIII, p. 170.

[3] It is conceivable, of course, that Mohenjo-daro was founded well on in the Chalcolithic period and that we must look to other sites for the Neolithic beginnings of the Indus civilization.

No. 18 in Pl. CV (DK 12871). Flint core. 2·25 ins. long by 0·44 in. in diameter. Light grey. A long narrow core, from which small flakes had been struck all round; probably regarded as too attenuated to allow of further pieces being struck from it. Locus: Bl. 9, ho. X, rm. 54. Level: — 11·5 ft.

Plate CVII.—No. 24 (DK 6361). Flake. 2·92 ins. long. Greyish-brown. The mode of wear of its edges suggests that it was used as a scraper. A badly worn concavity in one of the edges may even have been used for trimming arrow-shafts or the like. Locus: Bl. 1, ho. V, rm. 46. Level: — 11·3 ft.

No. 25 (DK 6829). Flake. 2·95 ins. long. Greyish-brown. Both extremities snapped off. Edges untouched, and show no signs of wear. Locus: Bl. 1, court 1 (20). Level: — 10·4 ft.

No. 26 (DK 6829). Flake. 3·27 ins. long. Greyish-brown. Edges very slightly rounded; some evidence of polish which may have been caused by scraping wood. Found in the same court and at the same level as No. 25.

No. 27 (DK 5119). Flake. 3 ins. long. Light brown. Edges worn down and slightly flaked by wear. Locus: Loop Lane, bet. Bls. 11 and 12. Level: — 10·8 ft.

No. 28 (DK 5210). Flake. 4·04 ins. long. Light grey. A fine flake with the edges as even and as sharp as when first struck. One end snapped off. Locus: Bl. 1, ho. V, rm. 46. Level: — 11·8 ft.

No. 20 in Pl. CVIII (DK 6195). Flint core. 3·75 ins. long. Had been used as a polisher, for some of the angles are rubbed down quite smooth. Another, larger core found with this one shows no trace of polish or other use. Locus: Bl. 4, rm. 8. Level: — 20·4 ft.

Chert Burnishers (*Pls. CIV, 12, 16; CV, 17, 19; CVII, 29*).

Plate CIV.—No. 12 (DK 5240) (see also Pl. CVII, 29). 5·65 ins. long; each side 0·65 in. wide in the middle. Grey chert. Well made, shaped and finished. Locus: Bl. 1, western court (61). Level: — 8·4 ft.

No. 16 (DK 4416). 6·05 ins. long. Triangular in section, with sides 0·7 in. wide in the middle. Grey chert. Badly chipped in places; shows evidence of hard wear, especially towards the points where the edges are rounded. Locus: Bl. 1, ho. I, rm. 18. Level: — 5·5 ft.

Plate CV.—No. 17 (DK 4910). 3·62 ins. long by 0·2 in. thick. Light grey chert. One face half round, the other flat. A polisher, for both sides and edges are worn quite smooth. This tool might have been used for a number of purposes, but as the wear and polish are somewhat unequal, it seems most probable that it was a potter's tool—perhaps used for polishing red slips. Locus: Bl. 11, ho. III, rm. 29. Level: — 10·9 ft.

No. 19 (DK 12880). 2·06×0·51×0·35 ins. Light grey chert. Oval in section. Possibly used as a burnisher by a goldsmith; the chisel-like point is much too blunt to have been used for cutting. Carefully polished all over. Locus: Bl. 8, ho. III, rm. 30. Level: — 11·5 ft.

Those specimens, in particular, that are triangular in section (Pl. CIV, 12, 16) are invariably beautifully made and finished; but for what purpose they were used is still a matter of surmise. Though I have already suggested that they were burnishers used by gold-workers, I am quite prepared to accept any other more probable suggestion. That they were not employed for burnishing

anything very rough or hard is suggested by their generally even, polished surfaces, which seldom show abrasion or wear. They were frequently broken, probably by careless treatment rather than the use to which they were put. Though none have as yet been found in the lower levels, this may be merely accidental.

Plough-share (?) *(Pl. CVI, 56).*

No. 56 in Pl. CVI (DK 10396). 12·5×5·35 ins.×3 ins. greatest thickness. Grey chert, mottled with light brown. A roughly chipped implement with a double-sloped edge; in shape like the metal blade-axes, but very much thicker. It had apparently never been used, and in view of slight irregularities here and there it may, perhaps, be regarded as unfinished.. Its weight (9 lbs. 13¾ ozs.) precludes the possibility of this implement being a weapon either of war or of the chase. Even supposing it had been ground down and polished, it would still have been impossibly heavy either for a hand tool or as a weapon; moreover, we have yet to find any examples of ground or polished stone implements. It is suggested that this very large flint implement may have been used as a plough-share, for which it would be quite suitable in a stoneless, alluvial country. Or it may have served a ceremonial purpose at a time when stone weapons had become merely a tradition.[1] Childe who has handled this implement compares the shape to a Nordic thick-butted celt.[2] Locus: Central St., bet. Bls. 8A and 21. Level: – 3·7 ft.

Mace-heads *(Pls. LXXI, 22; CIV, 1, 2, 4; CVII, 37, 38; CIX, 24, 27, 28, 35, 44; CX, 21, 22, 28, 29, 36).*

The only mace-heads found in the upper levels of the DK Area since 1927 are lentoid in shape, though a globular one has been unearthed in the SD Area (Pl. LXXI, 22). Both lentoid and round mace-heads can, therefore, be dated to the same period, though the former was undoubtedly much the more popular shape.

No. 22 in Pl. LXXI (SD 2782). Cream-coloured limestone. 3·2 ins. in diameter by 2·6 ins. high. The hole which is 0·9 in. in diameter was bored from both ends, leaving a slight ridge in the middle. Finish smooth, but unpolished. Locus: SD Area, Bl. 1, rm. 61, south-east corner. Level: + 2·6 ft.

Plate CIV.—No. 1 (DK 6592) (see also Pl. CVII, 38). 4·43 ins. in diameter by 1·2 ins. thick. Hard, dark grey stone, apparently of igneous origin. Surface smooth, but unpolished. Bi-conical hole through centre, ranging from 0·82 in. in diameter at the middle to 1·53 ins. at the outside. Carefully made, but not exactly round. Locus: Bl. 9, ho. VI, rm. 79. Level: – 9 ft.

Nos. 2 and 4 (DK 5809) (see also Pl. CVII, 37). Averages 4·47 ins. in diameter by 1·45 ins. thick. Soft white alabaster, badly corroded and split. Has a blind hole in its base, 1·05 ins. in diameter and 1·19 ins. deep. A slight widening of this hole towards the middle of the stone suggests that sand was used as an abrasive; there is no indication of the use of a tubular drill. This mace-head was probably lashed to the stick; a purchase of only 1·19 ins. alone would hardly have been sufficient for security. The stone being soft would also have

[1] For other examples, see *Mohenjo-daro and the Indus Civilization*, pl. CXXXI, 17–9.

[2] *New Light on the Most Ancient East*, p. 217.

required the protection given it by the lashing or a covering of some kind. This head is now far from round, but it may conceivably have become warped under the influence of moisture, as alabaster often does. It is badly fissured all over, but there are indications that the original finish was good and that the head was polished. Locus: Bl. 12, ho. V, rm. 96. Level: – 11·1 ft.

I have already pointed out in the first book on Mohenjo-daro that mace-heads of the lentoid type are known from Susa and Egypt, but there is yet another civilization that used this type of weapon.[1] Childe has pointed out that they appear as flat stone discs with sharpened edges in villages dated to the first Danubian Period (Vinča I, and also Moravia),[2] and elsewhere he has made the suggestion that the form may have originated somewhere in the vicinity of the Nile Valley.[3] It seems to me, however, that this particular type of mace-head may easily have been invented independently, the form being derived in the first place from a flat round pebble with a natural hole in it. It only remained to select pebbles that were more regular in shape, bore them artificially, and sharpen the edges to produce definitely lentoid shapes.[4] This mode of evolution is clearly illustrated by a mace-head of Neolithic date lately found in London that was made from a quartzite pebble ; this head is not at all unlike the lentoid mace-heads of Mohenjo-daro.[5]

The following specimens were unearthed from the lower levels :—

Plate CIX.—No. 24 (DK 5243). 2·15 ins. in diameter by 1·65 ins. high. Hard, cherty limestone. The hole which is blind is 0·7 in. in diameter throughout and 1·12 ins. deep with a flat end. Locus: Bl. 2, ho. II, rm. 22. Level: –12·6 ft.

No. 27 (DK 9469) (see also Pl. CX, 29). 2·1 ins. in diameter by 1·15 ins. high. Pottery ; badly baked. The slightly bi-conical hole that pierces it is 0·62 in. in diameter at its narrowest part. Locus: Bl. 7, ho. VIII, rm. 16. Level: – 23·9 ft.

No. 28 (DK 9369) (see also Pl. CX, 21). 2·2 ins. in diameter and 2·2 ins. high. Cream-coloured, cherty limestone. The hole which is blind is 0·58 in. in diameter and 0·83 in. deep. Locus: Bl. 7, ho. VIII, rm. 16. Level: – 24·1 ft.

No. 35 (DK 8155) (see also Pl. CX, 28). 1·7 ins. in diameter and 1·75 ins. high. Soft, white limestone. Rounded hole in base, 0·55 in. in diameter by 0·41 in. deep. A shallow, rounded hole such as this would have been useless for affixing the head to a shaft, but judging from the finish of the hole and the surface of the head, I am inclined to think that this specimen was never finished. A very similar head, though bored right through, was found in the South Kurgan at Anau,[6] and very much the same variety of head with a beaded base

[1] I purposely omit the disc-shaped objects of Neolithic date from Italy, as the width of the central hole makes their use uncertain ; Peet, *Stone and Bronze Ages in Italy*, p. 155.

[2] *Danube in Prehistory*, p. 65.

[3] *The Aryans*, p. 128.

[4] The flat Egyptian mace-head, moreover, is of a distinct type not found in any other country.

[5] Armstrong Bowes, *Antiquaries Journal*, vol. VIII, p. 518-9.

[6] Pumpelly, *Explorations in Turkestan*, vol. I, p. 167 (390). It came from the Culture III level.

is known from Susa.[1] A double-beaded mace-head is carried by the Sumerian god Ningirsu, and this variety is also known in the period of Dungi.[2] Locus: Bl. 7, ho. III, rm. 43. Level: – 13 ft.

Plate CX.—No. 22 (DK 4168). Pear-shaped mace-head, 2·75 ins. high and 2·7 ins. in diameter, with a slightly bi-conical hole, 0·62 in. in diameter. Yellow limestone; well made and with a smooth, but unpolished surface. Locus: Bl. 6, ho. I, rm. 1. Level: – 12·4 ft.

No. 36 (DK 5015) is a badly broken mace-head of soft, white alabaster, which has become warped by damp. The straight hole through its centre is 0·48 in. in diameter. Locus: Bl. 11, ho. III, rm. 41. Level: – 17·6 ft.

Possible Mace-heads *(Pls. CIX, 26–9; CX, 23; 42).*

No. 26 in Pl. CIX (DK 5816) (see also Pl. CX, 23). A white alabaster ring, 4·4 ins. in diameter and 2·3 ins. high, with a hole through it, 1·3 ins. in diameter. This object may have been used as a mace-head, though it is very similar in shape to the ring-stones of limestone found in previous seasons.[3] Locus: Bl. 1, ho. VII rm. 56. Level: – 19 ft.

No. 29 (DK 5561) (see also Pl. CX, 42). 2·6 ins. in diameter by 1·25 ins. thick, with a parallel-sided central hole, 0·68 in. in diameter. Soft, white alabaster. Locus: Bl. 1, Central corridor (9). Level: – 15·5 ft.

These mace-heads are by no means numerous, and they were probably carried merely as a protection by those whose business took them through desolate jungle, just as is the light metal axe that is carried on occasions by the Sindhi and the maces of the Arabs of Iraq. A mace-head would also have been a convenient weapon with which a householder could protect his property.

Perforated, wavy-topped Mace-heads (?) *(Pls. CIV, 5; CVII, 39; CIX, 43; CX, 18).*

No. 5 in Pl. CIV (DK 10291) (see also Pl. CVII, 39). Height and diameter, 2·5 ins. Concave base, 0·55 in. deep. Soft, white alabaster. The four projections on the top were made by quartering it with a saw and then carving it into shape. A vertical hole, square in section, through the centre of the object measures 0·93 in. each way, and the partially drilled round hole in its side is 0·8 in. in diameter. This latter hole was cut with a tubular drill, which allowing for shake was 0·03 in. thick. The core was not removed and still remains in the cut, showing that this part of the head at least was unfinished. Unfortunately, the stone, has suffered badly from the action of water and we are therefore, unable to judge of its former general finish. Locus: Bl. 6A, rm. 41. Level: – 5·5 ft.

No. 43 in Pl. CIX (DK 4156) (see also Pl. CX, 18). Soft, white alabaster; badly broken. 3·34 ins. in diameter and 2·87 ins. high. Vertical hole through centre 1·3 ins. in diameter. The horizontal hole in the side averages 0·67 in. in diameter and 0·76 in. deep; it does not communicate with the large vertical hole. Four projections on upper surface. Base flat. Locus: Bl. 3, ho. I, rm. 15. Level : – 13·4 ft.

[1] J. de Morgan, *Prehistoire Orientale*, III, p. 101.

[2] King, *Sumer and Akkad*, pp. 131 and 206.

[3] *Mohenjo-daro and the Indus Civilization*, pl. CLVII, 59.

These two examples are typical of a group of similar objects, which are always made of a comparatively soft stone.[1] My former suggestion that they were perhaps used as mace-heads does not explain the purpose of the hole that is invariably found in their sides. This cannot possibly have been a dowel-hole to secure the stone to a shaft, for in most cases it is much too large ; moreover, in one object only does this hole meet the central one. It is possible, however, that a spike of metal or wood was fixed in the hole to make the weapon more effective, a circumstance that would cause us to revise our impression of the peaceful character of the people of Mohenjo-daro, unless these mace-heads, if such they be, were used solely in hunting or for self-protection.

In the majority of these heads the base is flat ; but in No. 5 in Pl. CIV, it is concave and the central hole is square instead of round in section. The four curious projections at the top of each of these stones may perhaps have served no other purpose than mere decoration ; but if the mace-head theory be adopted, the grooves between them would have been distinctly useful in lashing the stone to a shaft.

Weights (*Pls. CV, 1–6 ; CVI, 47, 51–4 ; CX, 4, 6 ; CXI, 56–62, 73–6, 81 ; CXV, 13, 15 ; CXXXV, 11 (?), 12 (?), 21 ; CXXXVII, 15*).

No variant shapes have been found since those published in the first book on the site, save a series of pebbles which were used as weights. Only those of especial interest, therefore, need be mentioned here. The tabulation of weights at the end of this book together with Mr. A. S. Hemmy's report on them in Chapter XVII will give all the information required by both archæologist and metrologist.[2] No weights have been included in this list that are badly damaged and those under the heading "Damaged" have not lost more than ½ per cent. of their original weight. I should like to take this opportunity to thank Dr. M. A. Hamid for his very careful determination of the values of these weights.

The chert of which most of them were made was liable to be slightly chipped at the corners and edges by constant use, but the consequent loss of weight was usually very small and, indeed, negligible in comparison with the original weight of the object.

It will be seen that chert was easily the favourite material for making weights ; out of a total of 220 weights, 162 are made of this material. They were invariably very carefully shaped and polished, and some of them are beautifully veined. Indeed, they show that the working of this difficult stone had been developed to a fine art at Mohenjo-daro, though the use of stone for making tools and weapons had long since fallen into abeyance on the advent of copper.

Fourteen weights are made of various stones which have not yet been identified, the majority of them (eleven) being a hard, black stone, plentifully mottled with white, which superficially resembles a granite.[3] Eight barrel-shaped weights are another hard, black stone which Dr. Fermor states is a variety of quartzite. It is just possible that these barrel-shaped weights may have been importations from other parts of India, perhaps from places nearer the coast

[1] For particulars see *Mohenjo-daro and the Indus Civilization*, p. 475, pl. CLVII, 55, 58, 60.

[2] For a previous report by Mr. Hemmy on other weights, see *Mohenjo-daro and the Indus Civilization*, pp. 589-98.

[3] See Chapter XIX for the recent identification of this stone.

where communication with Elam and Sumer, where the barrel-shaped weight was most popular, was perhaps easier.[1]

Ten weights are made of agate, a very suitable material for hard wear, and one of jasper. Of the weights made of softer stones, thirteen are limestone, one of which is yellow, one of alabaster, seven of steatite, and two of slate. One weight is some kind of paste which may or may not have been glazed. The use of a soft composition for making a weight is difficult to understand, because even if it had been glazed it would have been very liable to damage unless it was used with the greatest care; yet this one specimen is in a very good state of preservation. The weights made of alabaster and steatite would also have been subject to damage, as these materials are even softer than the paste mentioned above.

None of the weights were marked in any way, except No. 47 in Pl. CVI, on which there are two shallow pits, but these I am inclined to think were simply intended to rectify it.

Type (*a*). *Cube-shaped weights.*—This type is by far the commonest and occurs at all levels. No. 51 in Pl. CVI (DK 12301), which measures 2·1×2·09 ×1·61 ins., is made of light grey chert mottled with brown and weighs 274·938 gms. It is perfect except for minute chips here and there and is a good example of the cubical type of weight, of which others are illustrated in Pl. CV, 1–5.[2] It is, indeed, so well polished and the stone had been so carefully selected that it might be mistaken for a modern pedestal for some object. After the preliminary chipping into shape, this weight was rubbed down with an abrasive with the result that all the sides are slightly rounded. The edges were very slightly turned and polished to protect them.[3] Locus: Bl. 17, ho. III, rm. 25. Level: — 8·1 ft.

No. 81 in Pl. CXI (DK 8271) is an unfinished cube-weight of grey-chert, 2 ins. square by 1·36 ins. high. It had been carefully chipped into shape, but the flakings were never ground away.[4] Locus: Bl. 7, ho. IV, rm. 49. Level: — 16·8 ft.

Type (*b*). *Spherical with flattened top and base.*—No. 6 in Pl. CV (DK 10742). 5·4 ins. in diameter at its equator and 3·9 ins. high. Cream-coloured, cherty limestone. Weight 2·57631 kilogrammes. This weight is spheroidal with a flat top and base which gradually merge at their edges into the rounded sides. Well made and finished, smooth but unpolished; in an excellent state of preservation except for one or two abrasions which affect its weight but little. The holes in it are natural and must have existed when the weight was made. Locus: Bl. 9, ho. IX, rm. 56. Level: — 6·4 ft.

Plate CXI.—No. 73 (DK 5581), which was found with another of smaller size, is 4·4 ins. in diameter at its equator by 3·15 ins. high. It is made of a slightly yellow, cherty limestone and weighs 1445·85 gms. Locus: Bl. 10, ho. III, rm. 67. Level: —13·5 ft.

[1] In early Sumer, however, weights that approximate more or less closely to this shape were commonly made of a softer material, such as limestone. It seems that not until about 2,000 B. C. were harder stones employed.

[2] The field numbers of these are respectively:—DK 4676; 11199; 12864; 4730 and 10351.

[3] As a rule the edges are bevelled and not rounded. This method of protecting the edges of weights is known in Egypt of the time of Khufu; Petrie, *Ancient Weights and Measures*, p. 5.

[4] See also *Mohenjo-daro and the Indus Civilization*, pl. CXXXIII, 9.

No. 74 (DK 5607) (see also Pl. CX, 6). 4·52 ins. in diameter at its equator by 3 ins. high. A hard, cherty limestone. The flat top and base are each 2·63 ins. in diameter. Weight 1431·675 gms. In perfect condition. Locus : Bl. 1, western court (63). Level : — 18 ft.

No. 76 (DK 6329). 5·41 ins. in diameter at its equator by 3·92 ins. high. Smooth, but unpolished cherty limestone. Well made and shaped, and only slightly abraded. Its flat base and top are each 3 ins. in diameter. Weight, 2·73578 kilogrammes. Locus : Bl. 1, western court (23). Level : — 16·7 ft.

As far as we can tell from the few examples found, this type of weight occurs at all levels down to 18 ft. below datum. The smaller sizes were usually made of chert or flint, and one in chalcedony has been found. Though this almost spherical type of weight with flattened poles is not very common at Mohenjo-daro and there is no record in early times of weights of this shape in Elam, Sumer or Egypt, there is a group made of serpentine in the Ashmolean Museum, Oxford, which is said to come from Aphrodisias in Caria. Indeed, this type of weight is more common than was at first suspected. It was quite a usual shape in Roman times ; and many specimens have been found in both France and Italy, made of either bronze or a black stone, and sometimes of serpentine. There is a representative collection of them in the British Museum.

Type (*c*). *Cylindrical with flat top and base.*—No. 56 in Pl. CXI (DK 5679) is the second weight of this type to be unearthed, the first being illustrated in the earlier book on the site.[1] This later find is not quite so well made and regular as the first. It is 0·91 in. in height and an average of 0·78 in. in diameter, and it weighs 17·97 gms. The hard, dark grey stone of which it is made looks as if it had been burnt. Locus : Crooked Lane, bet. Bls. 1 (III) and 3. Level : — 12·4 ft.

Type (*d*). *Conical weights with hole for suspension.*—No. 54 in Pl. CVI (DK 10135) is a conical weight, 8·9 ins. high by 7·1 ins. in diameter, made of hard, grey, cherty limestone. Its condition is practically perfect. Weights of this type had already been found at Mohenjo-daro, but rarely in such good condition. The loss of weight due to very slight abrasions is infinitesimal compared with the total weight, now 11·46758 kilogrammes ; it cannot amount to more than half an ounce. The hole through the top of this weight may have been intended to take a ring of rope or metal by which to lift it. This hole show signs of considerable wear, being highly polished inside, and it was drilled downwards from either side to converge. A tubular drill seems to have been used. Originally the two openings were perfectly circular, but they are now slightly elliptical, probably owing to the friction of a ring. Though it is quite possible to lift this weight by inserting the fingers in the holes, it is a considerable strain on them. The base of this weight, which like the sides is polished, shows surprisingly little wear, and it is probable that it was not often moved. Locus : Bl. 26, ho. II, rm. 14. Level : — 5·8 ft.

As far as we can say at present, this type of weight appears to be confined to the upper levels. I have already stated that a similar weight has been found at Nāl in Balūchistān,[2] and with this sole exception weights of this type apparently do not occur outside India.

[1] See also *Mohenjo-daro and the Indus Civilization*, pl. CXXXI, 41.

[2] Hargreaves, *Mem. Arch. Surv. Ind.*, No. 35, pl. XV(b), 78.

Type (e). *Barrel-shaped.*—No. 15 in Pl. CXXXVII (DK 4486). Length 1·8 ins.; diameter in the middle 0·78 in. and at ends 0·5 in. Hard, greenish-black stone. Well made. Weight 28·47 gms. Locus: Bl. 7, ho. VIII, rm. 53. Level: — 4·1 ft.

Pl. CVI.—No. 47 (DK 11096). 2·14 ins. long; 1·05 ins. in diameter in the middle and 0·44 in. at the ends. Hard, black, semi-polished stone, of which Dr. Fermor, Director of the Geological Survey of India, says:—" It appears to be composed mainly of quartz and has a specific gravity of 2·65. It is probably a quartzite, though its place of origin cannot readily be suggested. It probably came from the Archaean rocks of Rājputāna ". This weight was very carefully made and shaped, and very slight faceting in places shows that it was rubbed into form. In perfect condition, except for being very slightly worn at the ends. Weight 55·9 gms. Two small pittings made with a drill may be identification marks, but I am inclined to think that they were more probably made in order to rectify the weight. Locus: First Street (34). Level: — 9·9 ft.

No. 52 (DK 11232) (d) (see also Pl. CXV, 13). 3·88 ins. long; 1·2 ins. in diameter in the middle and 0·67 in. at the ends. Hard, black, semi-polished stone. In perfect preservation except for a negligible amount of wear at the ends. Weight 151·424 gms. Locus: Bl. 15, ho. VI, rm. 28. Level: — 5·7 ft.

No. 53 (DK 11232) (e) (see also Pl. CXV, 15). 3·25 ins. long; 0·9 in. in diameter in the middle and 0·39 in. at the ends. Hard, black stone, with no remains of polish; slightly fissured here and there, possibly by the caustic used to clean the vessel in which it was found.[1] Weight 40·402 gms. This weight was found in a copper vessel with No. 52 and various other objects (Pl. CXV, 10–17). Locus: Bl. 15, ho. VI, rm. 28. Level: — 5·7 ft.

No. 4 in Pl. CX (DK 3845). 1·96 ins. long; 0·55 in. in diameter in the middle and 0·3 in. at the ends. Black stone of medium softness resembling slate. Very slightly chipped. Weight 13·97 gms. Locus: Bl. 3, ho. II, rm. 34. Level: — 13 ft.

No. 75 in Pl. CXI (DK 5302). 3·84 ins. long by 0·95 in. in diameter in the middle and 0·5 in. at the ends. Polished black stone. Well made and finished. In perfect condition. Weight 96·476 gms. Locus: Bl. 1, western court (62). Level: — 13·7 ft.

No weights of this type have as yet been found below the level — 13·7 ft., and they seem, therefore, not to have been in use during the earlier occupations of the site. I have already mentioned that weights of similar shape were known in Egypt, Elam and Sumer.[2] The early Sumerian and Elamite weights, however, differ somewhat from those found at Mohenjo-daro in that they graduate less sharply towards their ends. The Egyptian barrel-weights,[3] though considerably later in date, approximate very closely to the Indus Valley specimens. Certain barrel-weights that are known as early as the First Dynasty[4] were definitely flattened on one side, a type which we have not found at Mohenjo-daro. It is

[1] It was impossible to remove these two weights until the copper vessel in which they were found had been treated to remove incrustation.

[2] *Mohenjo-daro and the Indus Civilization*, pp. 463-4.

[3] Common in the Eighteenth Dynasty.

[4] Petrie, *Royal Tombs*, II, XXXV, 78.

said that this ellipsoid form of weight was derived from the shape of grain, which seems very likely as the small, early weights of Mesopotamia are multiples of the grain of corn or barley.[1]

Of the types (f) and (g) described in the first book on the site, no further examples have come to hand.

We have evidence from our recent excavations that the poorer people used ordinary pebbles as weights; as, indeed, they do at the present day in many parts of the East, the pebbles selected being as near as possible to the standard required and rubbed down, if necessary, to make them more exact. The pebble weights in Pl. CXI, 57–61, are of the following materials and weigh respectively :—

No. 57.	Hard white stone	5·425 gms.
No. 58.	Brown sandstone	4·195 „
No. 59.	Hard, black stone	4·190 „
No. 60.	Grey sandstone	37·188 „
No. 61.	Grey and black stone	30·930 „
No. 62.	Grey and white marble	13·770 „

The sizes of these pebbles can be gauged from No. 62 which measures 0·85×0·85×0·48 ins. One side of each had been rubbed down to adjust the weight. Locus: Bl. 9, ho. VII, rm. 77. Level: – 20·4 ft.

Of another group of pebbles (Pl. CXXXV, 11, 12, 21), the last (DK 11337 (f)) is certainly a weight. It measures 0·6×0·6×0·5 ins. and is made of the usual chert. It now weighs 6·3730 grammes, but a small amount was dissolved by the solution used to clean the vessel in which it was found. No. 11 (DK 11337 (1)) of this group is 1×0·81×0·42 ins. in size and is a dark grey stone. No. 12 (DK 11337 (1)) which is 1·4 ins. long by an average of 0·39 in. in width and thickness, was like No. 11 also damaged by the cleaning solution; these two, in consequence, were not weighed. Both now have a gritty feel, and it is possible that they were not weights at all, but were used perhaps as touchstones. Locus: Bl. 15, ho. VI, rm. 28. Level: – 7·1 ft.

Measure (*Pls. CVI, 30; CXXV, 1*).

We are by now well acquainted with the system of weights in use at Mohenjo-daro, but the measure of length (DK 10144) illustrated in Pl. CVI, 30, and in line in Pl. CXXV, 1, is the first that has been found at the site and it shows several unique features.[2] The material of which it is made, namely, shell, is probably the best that could have been used; it is not liable to warp or crack, nor even to be affected by changes of temperature—if, indeed, such an idea as this last ever entered the head of its maker. The only objection to the use of the shell for making measures of length is the obvious one that only short lengths can be procured; but this difficulty could have been obviated by the provision of metal joints.[3]

Nine divisions still remain, but how many there were in the unbroken rule we cannot say. It is likely that they were a multiple of five, for the rod is divided up on a decimal system; groups of ten divisions were marked off by circles and were halved into sub-groups of five. The scale was beautifully made and finished, and its accuracy is remarkable; the division lines were very carefully cut with a thin saw and average 0·02 ins. wide and deep. This portion whose divisions

[1] De Mécquenem, *Antiquity*, Sept., 1931, p. 335.

[2] None have as yet been found at Harappā.

[3] There are, however, no holes, nor marks, nor stains to show that metal joints were used.

average 0·264 in. is now 6·62 ins. long by 0·62 in. wide by 0·27 in. thick. Only one side of it is marked. In conjunction with the system of weights, it shows the people of Mohenjo-daro to have reached an advanced stage of mental development, with capabilities of precision and mathematical accuracy in thought and work. Locus: Bl. 18, rm. 46. Level: —3·6 ft.

The decimal system of linear measure is known in Egypt as early as the Fourth Dynasty,[1] and a decimal division of the cubit in the Twelfth Dynasty has been noted at Kahun.[2] Both the decimal and the sexagesimal system were in use in early Sumer, though it is not yet known which came first. According to Langdon, both systems were in use at Jemdet Nasr;[3] and on the Fara tablets, also, which must be dated to the Early Dynastic Period, the two systems were used. We are told, however, that a purely decimal system is found on the Proto-Elamite tablets;[4] and it may be that it was from Elam that the system was introduced into N. W. India,[5] though on the basis that every man has ten fingers it seems to me that the decimal system should be more primitive than the sexagesimal, and that it may have had independent origins. There is no evidence at present from either Mohenjo-daro or Harappā of a sexagesimal system having also been used. Mr. Hemmy has found amongst the weights that he has examined that the system employed was either binary or decimal.[6] I am inclined to think that possibly a second system of measurement may have been in use, for few of the widths of the doorways are actual multiples of the unit marked on the scale that has been found.

A cast of this measure was sent to Professor Sir Flinders Petrie for comparison with other ancient systems of measurement and we would thank him for the following report upon it:—

" The cast was measured along both sides by an ivory scale, divided to 0·02 estimated to 0·001 inch. The weighted average length of one space is 0·264 in. The mean error of graduation is 0·003 in.

The marks being five divisions apart show a decimal scale of 1·320, probably rising to 13·20 ins.

This is 1/10 of the northern foot of	13·20 ins.
In Egypt by rod measures (Twelfth Dynasty)	13·2 "
In Egypt by a standard slab (Ptolemaic)	13·4 "
Buildings in Asia Minor	13·3 "
Buildings in Greece	13·3 "
Buildings in Roman Africa	13·4 "
By Silbury Hill (Neolithic ?)	13·0 "
Belgic foot adopted in Roman lands	13·1 "
British land measure (chain, furlong, old mile)	13·2 "
British mediæval builder's foot	13·2 "
French architect's	13·0 "

[1] Petrie, *Pyramids and Temples of Ghizeh*, p. 180.

[2] Petrie, *Ancient Weights and Measures*, p. 39.

[3] *Oxford Editions of Cuneiform Texts*, vol. VII, p. V. See also Speiser, *Mesopotamian Origins*, p. 74.

[4] *Ibid.*

[5] It seems hardly likely that it was the other way about, if the assumption be correct that the culture that gave rise to the Indus Civilization originated in the highlands of Persia; Frankfort, *Archæology and the Sumerian Problem*, Oriental Inst., Univ. of Chicago.

[6] *Mohenjo-daro and the Indus Civilization*, p. 591. See also Chapter XVII of this book.

This seems to be a unit of northern origin, and it is of great interest linking it with early India."

Whetstones (*Pls. LXXI, 24 ; CV, 20 ; CVI, 19–21 ; CIX, 17, 20, 38*).

For some reason, not easy of explanation, hones are rarely found at Mohenjo-daro ; we have only seven new specimens to record, two of which were unearthed at a very low level. Possibly tools of this kind were not in common use, and whenever a metal tool required sharpening it was sent to the smith, though a piece of ordinary brick may have been used for the purpose. That a hard abrasive of some kind was used for sharpening metal tools and weapons is proved by the worn condition of the edges of several of those found ; but it seems certain that hones were not carried on the person, as seems to have been the case in Sumer about 2,700 B. C.[1]

No. 24 in Pl. LXXI (SD 3302). 8·15 ins. long by 2·15 ins. wide by 2·6 ins. high. Purplish-brown sandstone. Roughly shaped in the form of an animal. Signs of rubbing here and there. Locus : Bl. 6, rm. 23. Level : —1·8 ft.

Similar objects previously found have been regarded as anvils,[2] but I am now inclined to think that they are really hones as the material of which they are made is scarcely hard and smooth enough to hammer anything on. This latest specimen, moreover, bears definite evidence of rubbing here and there on its rough surface.

No. 20 in Pl. CV (DK 3781). 2·56×0·57×0·3 ins. Semi-hard, grey stone. A well-made hone, rectangular in shape, which had considerable use ; it has lost both ends. Locus : Bl. 6, ho. III, rm. 14. Level : —9·6 ft.

Plate CVI.—No. 19 (DK 10630). 3·02×0·46×0·3 ins. Brownish-black slate. A well-shaped hone, rectangular in section, but with both ends missing. Shows signs here and there of polish by wear. Locus : West Street, bet. Bls. 17 and 19, rms. 42 and 13. Level : —2·5 ft.

No. 20 (DK 12663). 2·24×0·37×0·3 ins. Brownish-black slate. One end missing. The perfect end of this hone is graded down to a fine chisel-edge, 0·12 in. wide, and is polished by use. The round end had been inserted in a handle, from which it was very likely broken off. This tool was possibly used for fine metal-work, especially for those parts at which it would be difficult to get with an ordinary hone. Very carefully made and shaped. Locus : Central Street, bet. Bls. 6A and 25. Level : —9·7 ft.

No. 21 (DK 11296). 3·18×0·45×0·25 ins. Grey slate, mottled with brown. Rectangular in section, with a flat edge along one side and a rounded one along the other. One end was carefully dressed down to a blunt point. The other is broken. This hone possibly served the same purpose as No. 20. Locus : Bl. 6A, rm. 41. Level : —8·8 ft.

[1] In Egypt hones are sometimes found in association with toilet articles and they were almost certainly used to sharpen razors ; Carnarvon and Carter, *Five Years' Explorations at Thebes*, p. 72, pl. LXV(1).

[2] *Mohenjo-daro and the Indus Civilization*, pl. CXXX, 24, p. 465.

Plate CIX.—No. 17 (DK 9502). 2·8 ins. long by 0·45×2·28 ins. in section at one end grading down to 0·3×0·15 in. at the other. Light grey stone resembling slate. Thinner end missing. Locus : Bl. 7, ho. VIII, rm. 16. Level : —25 ft.

No. 20 (DK 6175). 2·2×0·52×0·38 ins. This very unusual hone is made of pottery covered thickly all over with a gritty substance, resembling emery in colour at least. One end is missing and in the other there is a rough hole for a cord. This is the first hone to be found so covered, and we may infer from it that one craftsman at least had realized that an abrasive could be used in other ways than in powder or in the lump form. It is not inconceivable that abrasives were similarly applied to textiles, and perhaps leaves and bark, to be used to give a finish to wood. Locus : Bl. 7, ho. VIII, rm. 26. Level : —16·4 ft.

No. 38 (DK 9418). 1·43×0·9×0·6 ins. Dark grey slate. The business end of this short hone is rounded ; it was probably used for metal. Locus : Bl. 7, ho. I, rm. 9. Level : —24·4 ft.

Rubber.

No. 51 in Pl. CV (DK 5384) is 3·27 ins. long by 1·34 ins. wide and 1·7 ins. high, and grades down to a smooth, level edge at the base which bears evidence of being rubbed. It is hard, cherty limestone and is evidently a polisher or rubber of some kind. This object is a convenient shape to hold in the hand and may have been used in preparing skins. Locus : Bl. 9, ho. III, rm. 26. Level : —11 ft.

Large-Cones (*Pls. CIV, 3, 25, 27–9 ; CVI, 8, 50, 55 ; CXII, 2*).

Seven stone and two large pottery cones of varying sizes have been unearthed in our recent work. All, with one exception (Pl. CVI, 55), are of a simple type and in varying stages of finish. That two at least (Pl. CIV, 27, 29), if not others also, are *lingas* or phallic emblems seems evident, and I would refer the reader to the discussion of these emblems by Sir John Marshall in the first book on the site.[1]

Plate CIV.—No. 3 (DK 12262). Diameter at base 2·4 ins. ; height 2 ins. Grey, cherty limestone. Base very slightly convex. May have been used as a rubber. Rather weathered, but shows signs of polish here and there. Locus : Bl. 8A, rm. 42. Level : —8·2 ft.

No. 27 (DK 3984). Diameter at base 6·6 ins. ; height 9 ins. Hard, light grey, cherty limestone. The surface had been trimmed with a pointed pick or chisel, and the smooth, slightly convex base looks as if this object had been repeatedly moved about. Locus : Bl. 6, ho. III, rm. 24. Level : —8·4 ft.

These two stone cones do not appear to me to have been *lingas*. They were found in ordinary dwelling-houses and their smooth, worn bases suggest that they were moved to and fro as grinders. The rough finish of the upper surface may, moreover, have been intentional, to give a good grip to the stone.

[1] *Mohenjo-daro and the Indus Civilization*, pp. 58-61.

No. 25 (DK 10743). Diameter at base 2·15 ins., height 4 ins. Cream-coloured, cherty limestone. Badly chipped and fractured. Surface somewhat roughly finished and shows signs of the use of an abrasive on it, though there was no attempt at polish. Its flat base shows no particular wear, and this may very possibly have been a *linga*, though of very small size. On the other hand, it may conceivably be an unfinished weight, though owing to its broken condition its value could not be ascertained. Locus : Bl. 9, ho. IX, rm. 66. Level : —6·4 ft.

No. 28 (DK 6332). 9·3 ins. high by 5·85 ins. in diameter at the base. Cream-coloured, cherty limestone. Carefully trimmed with a pointed pick. Is perhaps an unfinished *linga*. Locus : Bl. I, ho. V, rm. 44. Level : —11·6 ft.

No. 29 (DK 3953). 5·35 ins. high by 4·22 ins. in diameter at the base. Brown limestone. Well finished and semi-polished. The two holes in the flat base, each 0·25 in. in diameter and 0·4 in. deep, show that this cone was intended to be pegged down on a flat surface. Indeed, there is every probability that this exceptionally well-finished stone is a *linga* which was stood upon a base, as in Pl. CIV, 22, 26. Its top, however, shows no signs of wear, nor are there any stains such as would have been caused by anointing it with butter, as is the practice of the present day ; but this particular object may not have been long in use. The locality in which this cone was found unfortunately gives us no clue to its use. Locus : First Street (7). Level : —9·8 ft.

Plate CVI.—No. 8 (DK 12034). 1·67 ins. high by 2·3 ins. in diameter at the base. Pottery ; no slip. Hemispherical with a vertical hole, 0·25 in. in diameter by 0·75 in. deep, in the centre of the flat base. A smaller hole in the top is 0·81 in. deep. There are two other holes bored horizontally on opposite sides, each 0·17 in. in diameter by 0·7 in. deep, and none of these holes meet. I can suggest no particular use for this well-made object. Locus : Bl. 15, ho. II, rm. 7. Level : —7·9 ft.

No. 50 (DK 10564). 9 ins. high by 5·5 ins. in diameter at the base which is fairly flat. Cream-coloured, fossiliferous, cherty limestone. Unfinished and out of shape. Locus : Central Street, bet. Bls. 8A and 21, rms. 40 and 12. Level : —5·4 ft.

No. 55 (DK 11047). 4·68 ins. high by 2·45 ins. in diameter at base. Soft, cream-coloured limestone. Beautifully shaped and smoothed, but does not seem to have been polished. The base is flat with a rounded edge and shows no particular evidence of wear. In the carefully rounded top there are three holes in a line, each 0·23 in. in diameter ; the outer two are bored diagonally to meet the central hole at a depth of 0·83 in. The use of this object is uncertain. It may be a plumb-bob, whose cord was passed down through the lateral holes and up the middle one ; but the holes seem rather large for this purpose. That it was not a weight seems to be proved by the softness of the material of which it is made ; it is, moreover, too light for a ring to be needed to lift it, in which case, also, the central hole would have been superfluous. Locus : Bl. 18, rm. 62. Level : —6 ft.

No. 2 in Pl. CXII (DK, DG, 3). 3·99 ins. high by 2·8 ins. in diameter at the base. Pottery ; indifferently baked. A very roughly made cone with a flattened base and in places out of shape. Its rough make suggests that it was

not a *linga,* unless it was made for temporary use at some particular festival. Locus : Bl. 7 (deep digging). Level : — 35·8 ft.

If these stone cones served a religious purpose, as some seem to have done, they were probably as much used by the people of the earlier as of the later occupations, and the fact that none have been found as yet in the lower levels may perhaps be attributed to their being kept as the levels rose or removed by brick-robbers. Stone must always have had a certain value at Mohenjo-daro, as the nearest outcrop of suitable rock is well-nigh sixty miles away.

Small Cones (*Pls. LXXI, 15 ; CV, 14, 15 ; CVIII, 5, 6, 12 ; CIX, 21, 33, 41 ; CX, 9–11, 19 ; CXXV, 29, 30*).

Small cones of either shell or pottery are found in large numbers though their use has not yet been ascertained. They can hardly have been used as borers for their points are seldom sharp enough ; nor would pottery be a suitable material for this purpose. They have been found at as low a level as 20 ft. below datum, but occur more plentifully in the upper levels. Two were found in storage jars and they may, therefore, have been used for some household purpose, or they may even have been toys. Pottery cones were used for decorative purposes at Ur and Warka in Babylonia ;[1] but there is no evidence nor any probability that they were thus used at Mohenjo-daro. One small pottery cone only have I found in a burnt-brick wall, but it was carelessly stuck in a crevice between two bricks and as likely as not was put there by a child (Bl. 4, rm. 8 (western wall)).

Baked clay cones are a special feature of the earliest phases of the Sumerian civilization. They have been found, both large (6 ins. in length) and small, from the pre-flood level of Ur down to the close of the Jemdet Nasr period ; sometimes with a shallow cavity in the base, sometimes washed over with black paint a short way up from the base.[2] [3] The specimens from Jemdet Nasr have concave bases like those found at Ur, but none are painted.[4] It is noteworthy that the pottery cones of ancient Sindh are almost always found with the point damaged ; in those few that have been found whole, the point had been carefully trimmed with a knife, as in some of the pottery cones of Jemdet Nasr.[5] These cones provide a definite link between the cultures of the Indus valley and of Sumer ; but it would be gratifying to know how they were used in India.[6] They may possibly be phallic emblems, in spite of their conventionalized forms—the *linga* of modern India is very plain in shape.

1 For illustrations as to their decorative value, see Woolley, *The Development of Sumerian Art*, pls. 8, 9 ; pp. 41, 42.

2 The pottery cones of Mohenjo-daro, whether the pencil-like " carrot " form or the wide-based variety, are very often coated with a black or brown wash, but entirely so instead of only partially.

3 Woolley, *Antiquaries Journal*, vol. IX, p. 328 ; vol. X, p. 336 : Hall, *A Season's Work at Ur*, p. 233, fig. 203 : Fisher, *Excavations at Nippur*, p. 33. To these sites must now be added Khorsabad, where some were found in a burnt-brick wall ; Frankfort, *Iraq Excavations of the Oriental Institute*, 1932-33, pp. 84, 86, fig. 77.

4 Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, p. 277, pl. LXX, 10–13.

5 *Ibid.*

6 They were certainly not all used for decorative purposes.

Shell Cones.

Plate CV.—No. 14 (DK 5293). 2·25 ins. long by 0·56 in. in diameter at the base, which is rounded but now badly corroded. Locus : Loop Lane, bet. Bls. 12 and 12A. Level : – 10·4 ft.

No. 15 (DK 11863) (see also Pl. CXXV, 30). 2·55 ins. long by 0·8 in. in diameter at the base. Rather roughly finished. Locus : Central Street, bet. Bls. 8A and 21, rms. 40 and 12. Level : – 8·1 ft.

Pl. CVIII.—No. 5 (DK 8156) (see also Pl. CX, 11). 2·39 ins. long by 0·74 in. in diameter at the chamfered base. Tip broken, but otherwise the cone shows no evidence of wear. Locus : Bl. 7, ho. III, rm. 43. Level : – 13 ft.

No. 6 (DK 8255). 4·1 ins. long and slightly rectangular; 0·73 × 0·82 ins. in section. Though unfinished, there are slight traces of wear at the point. Locus : Bl. 9, ho. VI, rm. 34. Level : – 15·4 ft.

Stone Cone.

No. 41 in Pl. CIX (DK 8136) (see also Pl. CX, 19). 2·12 ins. long by 0·8 in. in diameter at the base. Dark grey slate ; unpolished but smoothly finished. With its bevelled base this resembles some of the pottery cones. Locus : Bl. 7, ho. III, rm. 51. Level : – 17·3 ft.

Pottery Cones.

No. 15 in Pl. LXXI (SD 3055). Now 1·2 ins. high by 1·72 ins. in diameter at the flat, smooth base. It is possible that this object is a gamesman. It has a group of pictographs inscribed upon the side near the base and is unique in this respect ; no cones have hitherto been found to bear either pattern or inscription. Locus : Main Street (Alley), bet. Bls. 6 and 10. Level : + 0·25 ft.

No. 12 in Pl. CVIII (DK 8689). 2·49 ins. long. Very well made and smoothly finished with a pink slip. This " carrot " cone was found inside storage jar DK 8667, and its point is unbroken. Locus : First Street (6). Level : – 20·5 ft.

No. 21 in Pl. CIX (DK 9007). 2·38 ins. long. Very hard baked, pink pottery. Made on a wheel. Point missing. Spiral line of incised dots on the lower portion. Locus : Bl. 7, ho. IV, rm. 49. Level : – 20 ft.

No. 33 in Pl. CIX (DK 9035). 2·54 ins. long. Very hard baked pottery, now a light chocolate colour. Point missing. Spiral line of dots incised on lower portion. Like No. 21, this cone was made on a wheel. Locus : Bl. 9, ho. VI, rm. 32. Level : – 19·4 ft.

No. 10 in Pl. CX (DK 9157). 1·94 ins. long by 0·9 in. in diameter at the base, in which there is a shallow, central hole. Has a thick, blackish-brown slip. Locus : Bl. 2, ho. IV, rm. 19. Level : – 19·3 ft.

No. 29 in Pl. CXXV (DK 10999). Present height 2·2 ins. Light red clay, with a thick, brownish-black slip. Wheel-made. The flat base shows a certain amount of wear and the tip is missing. Roughly incised spiral line round base. Locus : Bl. 8, ho. III, rm. 47. Level : – 6·7 ft.

Pedestals (*Pls. LXXI, 21; CIV, 22, 23, 26; CVI, 48; CVII, 35, 36; CVIII, 21, 36; CIX, 44; CX, 37, 43; CXXV, 34*).

From time to time, though rarely, we come across hemispherical stone objects with the top slightly sunken which evidently served as pedestals.[1] They are invariably carefully made and are frequently ornamented, but never have we found two with quite the same decoration. The exact purpose of these stands is problematical, but the circular depression in most of them and the dowel-holes in some certainly suggest that other objects, perhaps similar to No. 29 in Pl. CIV, were set upon them. Some of them may, in fact, be the bases of *lingas*. That these objects were connected in some way with the religion of the time is, indeed, to be inferred from the trefoil pattern seen in No. 26 in Pl. CIV—a pattern which also occurs on the steatite statue found at Mohenjo-daro some years ago.[2] The similar trefoil pattern carved on certain steatite beads (Pls. CXXXVIII, 1–3; CXXXIX, 41, 74), which though apparently put to secular uses may have had a religious meaning, was perhaps thought to afford protection to the wearer. This motif was certainly a religious one in Sumer.[3] [4]

If, however, these pedestals were actually used for *lingas*, one would certainly expect to find the latter near them. Up to the present, this has not been the case. It is possible, of course, that the particular objects that they supported were of wood and have entirely perished; but I cannot conceive of an elaborately made stone base being provided for a wooden object, however sacred it might be. Moreover, the *lingas* of modern India are invariably made of stone and probably those of ancient times were also.

A possible explanation is that these pedestals became separated from the objects they supported and that at or after the desertion of Mohenjo-daro the latter themselves were carried away.

No. 21 in Pl. LXXI (SD 2966). 2·6 ins. high by 7·2 ins. square. Soft, white alabaster. There is a circular depression in the middle of the top, 2·8 ins. in diameter by 0·25 in. deep. The semi-polished sides slope gently towards the top and are also slightly incurved. Towards the middle of the flat base are two small dowel-holes, each 0·45 in. in diameter and 0·3 in. deep, at a distance of 1·3 ins. from the edge. Locus; Divinity Street. Level: + 3·6 ft.

Plate CIV.—No. 22 (DK 3338) (see also Pl. CVII, 36). 3·5 ins. high by 3·3 ins. in diameter at the top and 5·5 ins. at the flat, semi-polished base. A brownish-yellow, semi-hard stone. The depression in the top, which is 2·4 ins. in diameter and 0·22 in. deep near the sides, grading to a little more in the middle, was first cut with a tubular drill, the spaces between the holes being removed

1 *Mohenjo-daro and the Indus Civilization*, pl. CXXXIII, 18.

2 *Op. cit.*, pl. XCVIII, pp. 356-64.

3 Some reverence seems also to have been paid to the trefoil in Crete as early as E. M. II, for the shamrock has been found by Seager amongst many other petalled devices made of gold foil in tombs in the island of Mochlos; Evans, *Palace of Minos*, I, p. 96, fig. 67. It should also be observed that the trefoil is now associated with the Trinity, and, it is quite possible that it had a similar association in early civilizations.

4 It also appears on a sherd from Samarra (Herzfeld, *Samarra*, V, p. 28, fig. 44b); and again on a sherd from Tchechme Ali in Persia (*Mém. Dél. en Perse*, XX, p. 118, fig. 24).

Mention should also be made of the trefoil device that terminates the scabbards of the short swords carried by the palace guards of Cyrus in the sculptures recently found at Persepolis; "Treasures of Persepolis," *Times*, Feb. 4th, 1933.

subsequently with a chisel. The sides of the stand from the base to the top are horizontally fluted, and this ornamentation, though not entirely accurate, was nevertheless carefully done.[1] Locus: Bl. 7, ho. III, rm. 52. Level: — 3·5 ft.

No. 23 (DK 12390) (see also Pl. CXXV, 34). 1 in. high by 2·56 ins. in diameter at the base. Grey, cherty limestone. At first glance this hemispherical object looks like a piece of natural coral, for, except its smooth, slightly convex base,[2] it is covered all over, with a number of shallow pittings which vary in diameter from 0·19 in. to a very small size. These pittings are irregularly placed and a trefoil occurs here and there.[3] In the middle of the top of this stand there is a shallow depression, 0·12 in. deep and 0·45 in. in diameter in whose floor is a hole, 0·2 in. in diameter by 0·5 in. deep. A second hole cut horizontally in the side of the stand is 0·16 in. in diameter by 0·65 in. deep.

The depression in the top of this little stand is certainly not large enough to accommodate a *linga*, unless it were of minute size, but a small bronze statue or figure may possibly have been fixed in it. Probably it was intended to fill in the pittings with shell discs or coloured pastes to make a decoration of irregular spots intermingled, perhaps accidentally, with trefoils.[4] Locus: Bl. 6A, rm. 42. Level: — 9·2 ft.

No. 26 (DK 4480) (see also Pl. CVII, 35). 2·6 ins. high by 5·8 ins. in diameter at the widest part. Comparatively soft, dark red stone. The base of this pedestal is flat and semi-polished, with two holes in it, each 1·15 ins. from the edge and an average of 0·25 in. in diameter and 0·4 in. deep. These holes must have been provided to peg the stand down to something, whereas it has a depression, 2·45 ins. in diameter and 0·3 in. deep, in the top to take some other object. In the floor of this depression, which was naturally left in an unfinished condition as it was not meant to be seen, are two dowel-holes, each 0·25 in. in diameter and 0·6 in. deep.

The surface of this stand was carefully smoothed and partially polished, and on it at regular intervals a trefoil pattern was incised, each lobe of the device being cut with a tubular drill whose marks are still evident. It was evidently intended to fill in these incised devices with a coloured paste or with shell inlay, and the interiors were purposely left rough to afford a keyhold. Locus: Bl. 9, ho. VII, rm. 18. Level: — 4·8 ft.

No. 48 in Pl. CVI (DK 10652). 2·53 ins. high by 7·6 ins. in diameter at the base. Soft, white alabaster. The base of this pedestal is flat with a slightly chamfered edge that suggests that it was once fitted into a round cavity. The top is sunk to a depth of 0·31 in., and in the centre of the slightly concave floor is a vertical hole, 0·45 in. in diameter by 1·4 ins. deep, which tapers very slightly towards the bottom. The finish of the unpolished surface of this stand is good

[1] No lathe work is perceptible.

[2] The base is not sufficiently convex to prevent its standing properly.

[3] Somewhat the same ornamentation has been observed on a pebble of Neolithic date from Knossos, on which irregularly arranged pittings were subsequently filled in with a paste inlay; Evans, *Palace of Minos*, II, pp. 14-15, fig. 5 (c). Note also the stone ball, or pin-head, in Pl. CXLII, 71, of this book.

[4] The basic idea of these pittings was perhaps to imitate an ornamental stone, such as breccia. The trefoils that appear here and there may quite possibly be fortuitous; the overlapping of three drill-holes would produce this device.

and there are indications that it was once coated with plaster. Locus : Bl. 18, rm. 48. Level : — 5·7 ft.

Plate CVIII.—What may also be a stand is illustrated in Pl. CVIII, 21 (DK 8992). It is soft, white alabaster, and is 3·2 ins. high with tapering and very slightly concave sides, the latter 0·07 in. deep at the waist of the object. The base is 2·1×1·83 ins. and the top 1·98×1·82 ins. A well cut, vertical hole, 0·9 in. in diameter, penetrates the stand from top to base, both of which are flat. Unfortunately, this object is illustrated on its side, instead of upright as it should be. Locus : Bl. 1, central corridor (14). Level : — 17·1 ft.

No. 36 (DK 4824). 4·7 ins. high by 6·3 ins. in diameter. Hard, cherty limestone. The floor of the depression, 2·6 ins. in diameter by 0·2 in. deep, in the top, is far from smooth and seems to have been chipped out with a pointed chisel. Base flat and even. This pedestal was once covered with a carefully applied, hard plaster, which may have been coloured. It is now badly damaged. Locus : Long Lane, bet. Bls. 10A and 11. Level : — 13·8 ft.

Plate CX.—No. 37 (DK 6348). 0·97 in. high by 2·75 ins. in diameter. Soft, white alabaster. Depression in the top, 0·2 in. in diameter by 0·4 in. deep. Locus : Bl. 1, western court (23). Level : — 17·6 ft.

No. 43 (DK 7411). 1·15 ins. high by 6 ins. in diameter. Soft, white alabaster. Depression in top, 2·38 ins. in diameter by 0·35 in. deep, with a somewhat uneven floor. Flat, plane base. Locus : Long Lane, bet. Bls. 10A and 11. Level : — 19·7 ft.

Stone Jar-stand (*Pls. CIV, 21 ; CVII, 34*).

No. 21 (DK 10717) (see also Pl. CVII, 34). 11·6 ins. high ; 1 ft. 8 ins. in diameter at the base and 1 ft. 5·5 ins. at the top. Soft, cream-coloured limestone. Stood either way up, this ring-stand could hold a large storage jar, as the hole through the centre is bi-conical and is 5·6 ins. in diameter at the narrowest part. This stand was carefully shaped, but its surface was left rather rough. A practically identical stand, but larger in size, was found in the HR Area some years ago.[1] Locus : First Street (24). Level : — 8 ft.

Craftsmen's Stones (*Pls. CIV, 9 ; CIX, 25*).

No. 9 in Pl. CIV (DK 11157). Some 3·5 ins. in diameter and 1·32 ins. thick. Irregular in shape. Hard, dark grey stone. The base of this object is very roughly dressed, but the face which is slightly convex is polished, and here and there bears marks due to cutting. I am of opinion that this stone was used by a leather-cutter, and that its under-surface was purposely left rough, so that it might be fastened securely by means of a cement, such as bitumen, either to the top of a stake or on a bench. Very similar stones are used by shoemakers in India at the present day. *Locus : Bl. 8A, rm. 45. Level : — 4·2 ft.*

No. 25 in Pl. CIX (DK 8994). 3·9 ins. in diameter and 0·92 in. thick. A crystalline stone, greenish-black in colour. The slightly rounded upper surface is smooth and polished. The base was left quite rough, possibly to allow of its being cemented to a bench or post. This stand appears to me to have been shaped for use by a jeweller. Locus : Bl. 1, central corridor (14). Level : — 17 ft.

[1] *Mohenjo-daro and the Indus Civilization*, pl. CLVII, 62.

Candle-stick (*Pls. LIV, 12 ; LVI, 35*).

No. 12 in Pl. LIV (DK 3425) (see also Pl. LVI, 35) is a pottery candle-stick, the first to be found at Mohenjo-daro or Harappā. It is made of the usual pink ware with a heavy admixture of sand, mica and lime, but no slip, and is very thick and heavy in make with its flat broad base carefully trimmed. The vertical hole running right through the substantial candle-holder in the centre also pierces the base of the stand. The diameter of this hole, 0·9 in., is of sufficient size for it to take even a modern candle. The diameter of the dish-like stand is 5·8 ins. and its height 1·81 ins. Unfortunately, the upper part of the candle-holder is missing and we do not know its shape ; but in its present state the holder still projects 0·3 in. above the rim of the dish. Locus : Bl. 7, ho. IV, rm. 72. Level : — 7·7 ft.

Our reason for regarding this object as a candle-stick is that, though in general shape it resembles certain jar-covers that have been found at Mohenjo-daro (see Pl. LVII, 3–7), in none of the latter is there a hole through the central projection, which in the covers served solely for lifting them. A small hole through the projection might have accommodated a cord for lifting the cover, but a larger hole, measuring as much as 0·9 in. in diameter, would have served no useful purpose whatever in an object used solely as a jar-cover.

We have, however, still better evidence as to the use of this particular object in that at Knossos a pottery vessel, dated towards the end of the Middle Minoan Period, very closely resembles it save for being painted. A very similar object of Early Minoan II age has, Sir Arthur Evans points out, been found at Śiva near Phaestos ;[1] and practically the same form has been compared by him with an Egyptian clay candle-stick of the Fourth Dynasty, now in the Ashmolean Museum, Oxford.[2] The dates of these last two examples need not alarm us, for they belong to about the same period to which we have now provisionally assigned the upper levels of Mohenjo-daro, namely, c. 2,600 B. C.[3] No actual candles have to my knowledge been found at Mohenjo-daro, or in Egypt or Crete ; from their very nature these could hardly have survived even in that climatically much favoured country Egypt. Representations of candles occur, however, on the walls of tombs of the Eighteenth and Nineteenth Dynasties[4] in the Theban necropolis and elsewhere. In Sumer no candle-sticks have yet come to light, but M. Watelin has found what he calls a rushlight-holder of copper, an article which though entirely dissimilar in shape from the other examples that I have quoted, none the less tends to prove that candles of some kind were actually used in that country.[5] This is, of course, not surprising, since Sumer and Sindh were well acquainted in those early days.

[1] *Palace of Minos*, vol. I, p. 578, figs. 422, 423, b.

[2] *Op. cit.*, fig. 423, a. This candle-stick was found by Quibell with another of the same shape in a tomb of the Old Kingdom at El-Kab. For a discussion as to its use, see Burchell in *Man*, 1924, sects. 28 and 96, where it is compared with ancient candle-sticks from Bulgaria, and elsewhere. See also Childe in *Man*, Jan., 1923, 2.

[3] This is according to new evidence obtained by Frankfort in his excavations at Tell Asmar in Mesopotamia.

[4] *Ancient Egypt* (1915), p. 141.

[5] H. Field, *Anthropology Leaflet*, II, pl. VIII, Field Museum, Chicago. This is now regarded as a support for a stone jar ; Watelin, *Excavations at Kish* (iv), pl. XXI, 1 ; p. 27.

It would, perhaps, be idle to speculate on the materials of which the candles themselves were made ; suffice it to say that wax and fallow were probably as easily procurable in ancient Sindh as they are at the present day.[1] One cannot help wondering, however, if the wicks were of cotton or rush, and whether the great advantages of the former over the latter were realized so early.[2]

Flesh-rubbers and Rasps (*Pls. LIV, 14; CV, 39; CVI, 32; CIX, 42, 49, 50; CXXV, 33*).

No. 14 in Pl. LIV (DK 8163) (see also Pl. CXXV, 33). 5·9 ins. long ; 3·1 ins. diameter in the middle and 1·2 ins. in diameter at the ends. Light red paste, plentifully mixed with lime and an unusually large proportion of sand to make it rough and gritty. A vent-hole at one end is 0·23 in. in diameter. Locus : Bl. 9, ho. VIII, rm. 15. Level : – 10·7 ft.

No. 39 in Pl. CV (DK 12787). 4·65 ins. long by 1·78 ins. wide by 0·78 in. thick. Light red pottery, moderately baked and worn very smooth. The upper surface is pricked with considerable regularity in parallel, oblique lines which though now worn smooth must have produced a file-like surface when new. Traces of a cream slip remain, but the rasp was so roughly made that it may have been a home product. Locus : Bl. 8, ho. III, rm. 38. Level: – 10·2 ft.

No. 32 in Pl. CVI (DK 11980). 4·75×1·95×1·75 ins. Semi-hard, reddish-grey stone, apparently of igneous origin. The flat base of this rectangular rasp is so worn as to be quite smooth in places. Whether this rasp was used for the bath or for dressing animal skins is uncertain. The care with which it was shaped, however, suggests the former and, though somewhat heavy with its rounded top, it could be conveniently held in the hand. Locus : Bl. 28, ho. I, rm. 5. Level: – 6·2 ft.

Plate CIX.—No. 42 (DK 8334). 2·15×0·89×0·5 ins. Pottery. Flat face, rounded back. Very worn. Locus : Bl. 7, ho. IX, rm. 29. Level : – 16·1 ft.

No. 49 (DK 7484). 2·4×1·2×0·5 ins. Pottery. Flat face, rounded back. Locus : Bl. 3, ho. VI, rm. 47. Level: – 20·6 ft.

No. 50 (DK 7662). 2×0·78×0·47 ins. Pottery. Flat face, rounded back. Very worn. Locus : Bl. 9, ho. VIII, rm. 16. Level: – 19·8 ft.

All these pottery flesh-rubbers had done good service and in several cases had probably been thrown away as useless. With the exception of the barrel-shaped one, they are all very similar in shape, with a pricked, file-like face and smooth, rounded back. They are found at all levels and cannot be dated by their shapes. Flesh-rubbers of pottery of this type, sometimes with a handle of the same material, are still in use in most parts of India. The barrel-shaped type is more rarely found ; nor have I yet seen or heard of modern examples. This latter type was always made hollow so as to reduce its weight, but even so it must have been a somewhat bulky article to hold in the hand.

[1] Sir Arthur Evans has already suggested that the cavity around the central holder was intended for guttering wicks, and we must, therefore, suppose that tallow candles were used with these stands ; *Palace of Minos*, II, pp. 127-8.

[2] That cotton was known and made into textiles has been stated in *Mohenjo-daro and the Indus Civilization*, pp. 585-6. See also Chapter XVI of this book.

The flat type of rubber of the present day is used to remove hard skin from the soles of the feet, and it is possible that the barrel-shaped variety was employed in the same way.

Strigils *(Pl. CVIII, 2, 3).*

During the earlier excavations at Mohenjo-daro a number of broken objects were found, which I then suggested were model stools made by children.[1] The two perfect specimens now illustrated make it clear that these articles were used as strigils.

No. 2 (DK 9346). 2·9 ins. long by 1·6 ins. wide by 0·27 in. thick, with a handle 1·22 ins. thick. Pottery, with a cream slip. The flat, blade-like portion is slightly curved and carefully finished. The handle is very rough and is perforated by a hole, 0·12 in. in diameter. Locus: Bl. 3, ho. I, rm. 16. Level: –16·3 ft.

No. 3 (DK 8785). The flat portion is 2·85 ins. long by 1·35 ins. wide by 0·25 in. thick. The handle, whose end is missing, is 5·15 ins. long. Somewhat coarsely finished pottery. As there would naturally be a certain amount of strain on the blade when in use, the maker evidently thought it desirable to reinforce its attachment to the handle by a narrow strut. This object was found in a drain into which it had probably been washed from a bathroom. Locus: First Street (1). Level: – 21·7 ft.

Both these strigils show surprisingly little wear and it may be that they were lost or mislaid soon after they came into use. No. 2 is of a pattern hitherto unknown at Mohenjo-daro, but No. 3 is fairly common in both the upper and lower levels, though it is always broken. I do not know if pottery strigils are in use in India at the present day—probably they are in some parts—but they may be a very different shape.

Spindle-whorls *(Pls. CV, 32, 41, 48, 49; CVI, 13, 14, 22, 23, 34; CVII, 9–11; CIX, 46, 48, 55–7; CX, 5, 17, 30, 41; CXXV, 6).*

Spindle-whorls of varying types and materials were, as would be expected, in common use, probably for spinning wool as well as cotton, though the latter only has been found at Mohenjo-daro. Judging from the small holes in most of the whorls, the spindles were chiefly metal; but wood was possibly used for the whorls illustrated in Pls. CVII, 10; CXXV, 6, 16. Spindle-whorls of shell are especially numerous and invariably show the curvature of the material from which they were cut. None of the whorls are heavy; evidently only fine yarns were spun with them, which suggests that owing to its great elasticity wool was, if used at all, spun with large, wooden whorls, as at the present day. No pictographs or owner's marks occur on the whorls that have been found. Sometimes, though very rarely, they are ornamented; pottery whorls with paint, faience whorls with simple moulded designs, and shell whorls with incised lines.

Whether these whorls were threaded at the top or bottom of the spindle, it is impossible to say. It was the classical practice to fix the whorl at the base of the spindle as in modern Sindh around Mohenjo-daro and in Mesopotamia. In ancient Egypt and in Sumer[2] the whorl was near the top with the hook or

[1] *Mohenjo-daro and the Indus Civilization*, p. 560, pl. CLIV, 1, 4.

[2] *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, pp. 43, 168; pls. XVIII, 17; XL, 3; LVIII, 1.

notch to hold the thread just above it. From the whorls alone, or even attached to the spindle, it is impossible to tell how the actual spinning was performed. According to Mrs. Grace Crowfoot, there are no less than four different methods of the use of the spindle, all of which are amply explained and illustrated in her brochure on the subject.[1]

Plate CV.—No. 32 (DK 7891). White paste. 1·35 ins. in diameter by some 0·5 in. thick. Possibly a spindle-whorl. Both sides are alike. Locus: Low Lane, bet. Bls. 6 and 7. Level: – 11·6 ft.

No. 41 (DK 8125). Shell. Slightly elliptical; from 1·75 to 1·9 ins. in diameter by 0·33 in. thick. Diameter of hole through centre 0·1 in. The obverse is weathered and now shows no signs of polish. The reverse is concave in places owing to the natural curvature of the shell. Locus: Bl. 9, ho. VIII, rm. 15. Level: – 8·9 ft.

No. 48 (DK 8117) (see also Pl. CVII, 9). Shell. From 1·63 to 1·72 ins. in diameter by 0·33 in. thick. Diameter of hole in centre 0·05 in. Surface of obverse smooth, but weathered; reverse concave Locus: Bl. 9A, ho. V, rm. 67. Level: – 11·3 ft.

No. 49 (DK 5743). Vitreous paste; turquoise-blue in colour. 1·48 ins. in diameter by 0·21 in. thick. Both sides very slightly convex, with a slight projection to ornament the obverse. Locus: Bl. 7, ho. VIII, rm. 25. Level: –10·9 ft.

Plate CVI.—No. 13 (DK 11630). Faience; with very slight traces of dark-green glaze. Estimated diameter 0·95 in. by 0·25 in. thick. Rather small with cable-pattern around the edge and in the middle a circle containing a square with incurved sides. Locus: Bl. 25, ho. II, rm. 15. Level: – 8·6 ft.

No. 14 (DK 12130). Faience; blue-green, with dark red glaze. Estimated diameter 3 ins. by 0·3 in. thick. Diameter of the hole 0·17 in. Decorated with two bands of fluting round the margin. The core of this whorl is light red sandstone (?) mixed with a suitable flux; it is very hard and there are gas-holes here and there. It is the first time that a faience spindle-whorl with a core of this colour and structure has been found at Mohenjo-daro. The application of a light red glaze over the usual blue-green glaze is also a novel feature, but the red was not stable and has disappeared in places. This red glaze may be haematite coated over with a transparent flux like some of the red glazes of Egypt.[2] Locus: Bl. 21, ho. IV, rm. 23. Level: – 7·1 ft.

No. 22 (DK 10542) (see also Pl. CVII, 11). Vitreous paste; apple-green in colour. 1·36 ins. in diameter by 0·24 in. thick. Diameter of hole 0·2 in. Ornamented with shallow flutings. Locus: Bl. 9, ho. I, rm. 50. Level: – 3·4 ft.

No. 23 (DK 11241) (see also Pl. CXXV, 6). Shell. 1·6 ins. in diameter by 0·21 in. thick. Diameter of hole 0·13 in. The obverse is quartered by triple lines cut with a saw. An exceptionally well made whorl, and polished by much use. Locus: Bl. 25, ho. I, rm. 11. Level: – 9·9 ft.

[1] *Methods of Hand Spinning in Egypt and the Sudan*, Bankfield Museum Notes (Halifax), Second Series, No. 12.

[2] Petrie, *Arts and Crafts*, p. 118.

No. 34 (DK 10220). Vitreous paste; apple-green in colour. Estimated diameter 2·1 ins. by 0·13 in. thick. Upper surface ornamented with a cable-pattern round the edge and a rosette in the middle; lower surface flat and plain. Locus: Bl. 27, ho. I, rm. 7. Level: – 5·9 ft.

No. 10 in Pl. CVII (DK 10632). Shell. 1·7 ins. in diameter. Follows the natural curvature of the shell from which it was cut. Locus: Bl. 8, ho. III, rm. 31. Level: – 2·9 ft.

Plate CIX.—No. 46 (DK 9031) (see also Pl. CX, 5). Steatite. 0·77 in. in diameter and 0·19 in. thick. Hole in centre, 0·08 in. in diameter. Somewhat roughly made and cut. The obverse is decorated as seen in the photograph; the reverse is quite plain. This is very small for a whorl and may conceivably be a button. Locus: Lane bet. Bls. 9 (VI) and 12. Level: – 20·4 ft.

No. 48 (DK 5642). Shell. 1·59 ins. in diameter by 0·33 in. thick. Diameter of hole, 0·1 in. Slightly out of shape through following the natural curvature of the shell. Locus: Bl. 1, western court (63). Level: – 18 ft.

No. 55 (DK 7934) (see also Pl. CX, 17). Shell. 1·6 ins. in diameter and 0·21 in. thick. Diameter of hole, 0·09 in. Upper surface carefully polished; under surface slightly concave and in places follows the natural curvature of the shell. Locus: Bl. 7, ho. V, rm. 78. Level: – 12·9 ft.

No. 56 (DK 4066). Shell. 1·65 ins. in diameter by 0·25 in. thick. Diameter of hole, 0·23 in. Base concave; shows the natural curvature of the shell. Exceptionally well made. Locus: Bl. 2, ho. II, rm. 24. Level: – 12·7 ft.

No. 57 (DK 5448) (see also Pl. CX, 30). Shell. 1·11 ins. in diameter and 0·15 in. thick. Rather roughly made. The obverse is decorated with six circles each enclosing a smaller one, and the reverse with a larger circle round the central hole. Locus: Bl. 1, ho. V, rm. 41. Level: – 12·4 ft.

No. 41 in Pl. CX (DK 9220). Shell. 1·66 ins. in diameter and 0·3 in. thick. Diameter of hole, 0·1 in. Base very slightly convex. Locus: Crooked Lane, east of Bl. 1 (Palace), south wing (I). Level: – 20 ft.

Possible Spindle-whorls *(Pls. CV, 46, 47; CVI, 24; CVII, 21; CIX, 51, 52, 54, 58, 59; CX, 31, 38, 39; CXXV, 16).*

There are two types of whorls which may not have been used for spinning, though it is difficult to suggest another use for them.

Type (*a*). With the exception of No. 24 in Pl. CVI, the whorls of this type have a flat or very slightly concave base and a domed top with a groove round its edge, and through them are pierced three vertical holes, all of the same size. They are always made of pottery, baked much harder than the ordinary, simpler whorls. The holes perhaps accommodated a split, wooden spindle like the split spindles used in the two-hole whorls of Iraq to-day, which according to Koldewey were also in use in ancient Babylon.[1] The groove round the edge, whether merely

[1] *Excavations at Babylon*, p. 258. There are also two holes in some of the whorls from Vardaroftsa in Macedonia; *B. S. A.*, vol. XXVII (1926), p. 37, fig. 23. Also see *Mohenjo-daro and the Indus Civilization*, pl. CXXXI, 68, 71. I have already stated that whorls with two holes are known from early Elam, Sumer and Anau; *Op. cit.*, p. 468.

ornamental or used for rubbing the thread,[1] is also present on whorls of early Palestine that were definitely used for spinning.[2]

No. 46 in Pl. CV (DK 3520). Light red pottery. 1·7 ins. in diameter by 0·58 in. thick. Three holes in a line, each 0·1 in. in diameter. Groove round the edge, 0·1 in. wide and deep. Hand-made; smooth domed top and slightly concave base. Locus: Bl. 9, ho. III, rm. 30. Level: – 4·5 ft.

No. 24 in Pl. CVI (DK 12273) (see also Pl. CXXV, 16). Pottery, with a white slip upon which a now indistinguishable pattern was painted in green, black and red. 1·85 ins. in diameter by 0·37 in. thick. Both base and top are flat, with the groove 0·02 in. wide and 0·12 in. deep. Three holes in line; the central one 0·15 in. and the outer ones 0·08 in. in diameter. Locus: Bl. 13, ho. I, rm. 12. Level: – 7·5 ft.

No. 52 in Pl. CIX (DK 5572) (see also Pl. CX, 38). Pottery; heavily fired and now grey-brown in colour. 1·8 ins. in diameter. Flat base and domed top. Each of the three holes is 0·11 in. in diameter. The groove around the edge is 0·1 in. wide by 0·11 in. deep. Locus: Bl. 10, ho. IV, rm. 73. Level: –13·6 ft.

No. 54 in Pl. CIX (DK 8269) (see also Pl. CVII, 12). Pottery; smoked a dark-grey colour in the kiln. 1·68 ins. in diameter and 0·63 in. thick. The same shape as No. 52. The groove round the edge is 0·66 in. wide and deep. Locus: Bl. 7, ho. III, rm. 39. Level: – 14·4 ft.

Type (*b*). In the whorls of this type both the top and base are flat or nearly so, there is a single hole, and also a groove round the edge. It is very nearly the shape of a pulley. Though quite a number have been found, not all need be described. All are pottery. They average 1·69 ins. in diameter by 0·48 in. thick, and the hole is an average of 0·1 in. in diameter. The groove round the edge is some 0·1 in. wide and deep, and shows no sign of wear. Whorls of this type are found at all levels from – 33·3 ft. upwards.

No. 47 in Pl. CV (DK 3961) (see also Pl. CVII, 21). 1·75 ins. in diameter by 0·37 in. thick. Hole, 0·1 in. in diameter. Groove, 0·05 in. wide by 0·1 in. deep. Entirely hand-made with moderate finish. Locus: First Street (7). Level: – 9·8 ft.

Plate CIX.—No. 51 (DK 6124) (see also Pl. CX, 31). Was found with a second whorl of the same type (Pl. CX, 39). Locus: Bl. 4, rm. 8. Level: – 18·3 ft.

No. 58 (DK 9841). 1·3 ins. in diameter by 0·39 in. thick. Hole, 0·15 in. in diameter. Both top and base slightly concave. Groove, 0·1 in. wide and deep. Locus: Bl. 7, ho. I, rm. 3. Level: – 33·3 ft.

No. 59 (DK 8796). 1·35 ins. in diameter by 0·6 in. thick. Hole, 1·15 ins. in diameter. Groove, 0·16 in. wide by 0·12 in. deep. Both top and base slightly concave. Locus: First Street (1). Level: – 22·9 ft.

[1] It shows no signs of wear.

[2] Petrie, *Gerar*, pl. XLIV, figs. 29, 36. This groove is also to be seen on Greek whorls.

Bobbins or Sheaves (*Pls. CV, 33 ; CVII, 33 ; CVIII, 32 ; CX, 33*).

Somewhat akin to the whorls just discussed are three bobbins described below, two of which are made in steatite.

No. 33 in Pl. CV (DK 12644) (see also Pl. CVII, 33). Light yellow steatite. 1·33 ins. in diameter by 0·68 in. thick. The bi-conical hole through the centre is 0·32 in. in diameter at the middle and 0·45 in. at each end. There is a deep groove, V-shaped in section and 0·15 in. deep by 0·22 in. wide, round the circumference. This well-made object may possibly have been used as a bobbin, though in many respects it strongly resembles a sheave. It is, however, too small and made of too soft a stone for the latter purpose; moreover, it is extremely unlikely that the principle of the pulley was known at this very early period.[1] Locus: Bl. 9, ho. IX, rm. 63. Level: – 8·4 ft.

No. 32 in Pl. CVIII (DK 5798). Pottery; with a cream slip. 1·35 ins. in diameter by 1·58 ins. thick. Deep, wide groove round its middle, 0·24 in. in width and depth. Somewhat roughly made. This is certainly a bobbin which would have held a considerable length of fine thread. Locus : Bl. 1, court I (20). Level: –14·4 ft.

No. 33 in Pl. CX (DK 6909). Black steatite. 1·24 ins. in diameter by 0·68 in. thick. Hole, 0·16 in. in diameter. Well made, with a very carefully cut groove round the edge, 0·22 in. wide by 0·06 in deep. Locus: Bl. 3, ho. IV, rm. 48. Level: – 13·2 ft.

Wheels (*Pls. CV, 54; CVIII, 4; CX, 26; CXII, 5*).

These are undoubtedly the wheels of model vehicles and are described in Chapter XV.

Awls and Needles (*Pls. CV, 10–13; CIX, 7–10; CX, 2, 3*).

Only ivory or bone awls are dealt with here, those of metal being described in Chapter XIII. Unfortunately we have no bone needles among the more recent finds. The great majority of the ivory awls are trimmed down from the curious, ornamented, ivory sticks, of which we find so many examples at Mohenjo-daro and whose use we should very much like to know (Pls. CX; CXXXVIII).

In view of the numberless uses to which an awl can be put, it is impossible to say for what specific purposes those we illustrate were employed. That some at least were used in household work is suggested by the roughness of their points, which are very seldom really sharp, as though they had been used on loose materials. There is no evidence that they were ever employed for writing, though it would be quite possible on such a material as leaves or bark, as is done in South India to-day ; moreover, this mode of use would polish the points only, whereas the majority of these tools have a pronounced polish along the whole length of the thinner part.

Plate CV.—No. 10 (DK 12847). Bone 3·6 ins. long. Roughly rectangular in section, measuring 0·54×0·22 ins. at the thickest part. Comparatively blunt point showing evidence of much use. Locus : Bl. 9, ho. XII, rm. 93. Level : –11·9 ft.

[1] It was certainly unknown in Egypt before Roman times ; Petrie, *Ancient Egypt*, 1930, p. 33. See also Clarke and Engelbach, *Ancient Egyptian Masonry*, pp. 44, 85, 87, 96.

No. 11 (DK 12824). Ivory. 2·18 ins. long by 0·28 in. Square in section. This awl was trimmed down from an ivory stick that may have been used as a die, for though two of its sides bear the same pattern, namely, a row of small circles between a border line on either side, on the third side there is a row of larger circles without the lines, and on the fourth side three pictographic signs all of the same form,[1] with large circles on each side of them. The point is abrupt and rather roughly cut. Locus: Bl. 8, ho. III, rm. 37. Level: – 11 ft.

No. 12 (DK 12430). Ivory. 2·25 ins. long; 0·28×0·25 in. in section. This awl also appears to have been cut from a die, on two sides of which there were rows of five circles, with four circles on another side, and on the remaining side two simple lines that divide the rod into three longitudinally (Pl. CXXXVIII, 48). Point blunt and somewhat abrupt. Locus: Bl. 8, ho. III, rm. 29. Level: – 8·6 ft.

No. 13 (DK 12557). Ivory. 3·53 ins. long by 0·33 in. in diameter at the thickest part. Both points are broken, but what remains of them shows the polish of wear. Locus: Bl. 6A, rm. 42. Level: – 10·7 ft.

Plate CIX.—No. 7 (DK 6467). Bone. 4·35 ins. long. Shows signs of much use. Butt very roughly shaped. Locus: Bl. 12, ho. V, rm. 96. Level: – 13·2 ft.

No. 8 (DK 6618). Bone. 6·05 ins. long by 0·3 in. in diameter in the middle. One end missing. Locus: Low Lane, bet. Bls. 4 and 5. Level: – 19·8 ft.

No. 9 (DK 6631). Bone. 5·4 ins. long by 0·3 in. in diameter. Blunt end irregular and flattened. Tip of fine point missing. Shows the polish of much use. Locus: Bl. 10, ho. IV, rm. 71. Level: – 18·2 ft.

No. 10 (DK 6527) (see also Pl. CX, 3). Bone. 5·2 ins. long by 0·3 in. in diameter at widest part. Very worn and polished. Locus: Bl. 4. rm. 15. Level: – 20·8 ft.

Shell-ladles (*Pls. CV, 21, 26 ; CVI, 33, 46 ; CXI, 90, 91*).

Shell ladles of the types seen in Pl. CV, 21, 26, are fairly frequent finds at Mohenjo-daro, and they have also been found at Kish in Mesopotamia,[2] though I was not fortunate enough to unearth a specimen during my own work there. They were cut from a large shell[3] very commonly found in the Indian Ocean and Persian Gulf a partially cut specimen of which has lately been unearthed at Mohenjo-daro (Pl. CVI, 46). The very shape of the shell suggests an utensil of the kind illustrated; beyond removing the core and excrescences, little but smoothing and polishing is needed to produce the result we see. It is of interest that the specimens from Kish prove the same species of shell to have been worked in early Sumer. I do not imagine that either the Indus or the Sumerian finished ladles were importations, for we know that the people of both these countries were expert at working shell, and they had, moreover, equally easy access to the seas in which the raw material was to be found.

Plate CV.—No. 21 (DK 11806). Length 1·77 ins., including the handle. Well finished, with some slight evidence here and there of polish. Locus: Bl. 9, ho. X, rm. 86. Level: – 7·8 ft.

[1] *Mohenjo-daro and the Indus Civilization*, sign list, pl. CXXIV, ccxxxii.

[2] Not yet published, but to be seen in the Baghdad Museum.

[3] *Murex (Chicoreus) ramosus. Linn.*

No. 26 (DK 3518). Length 2·15 ins., including the handle; breadth 1·6 ins. Well made and finished but somewhat weathered. Locus: Bl. 9, ho. VI, rm. 36. Level: – 5·6 ft.

Plate CVI.—No. 33 (DK 11318). Length 0·96 in. This is the smallest ladle found at Mohenjo-daro—too small, in fact, for any ordinary purpose, though it may have been used for powders and cosmetics. It is beautifully finished and was made from an immature shell, instead of being carved from the columella as so small a ladle could have been. Locus: West Street, bet. Bls. 15 and 18, rms. 26 and 96. Level: – 8 ft.

No. 46 (DK 10801). Length 9·2 ins. This illustration of an unfinished ladle shows the kind of shell used and the method of cutting. The lower part of the inner surface being quite smooth already required no further treatment but the natural protuberances on the outside of the shell had all to be removed and the surface smoothed—no easy task with such brittle material. From the edge of the ladle it is evident that a saw was used: moreover, the sawing was done from various directions, possibly owing to the tool being rather short. Locus: Bl. 18, rm. 7. Level: – 5·6 ft.

Plate CXI.—No. 90 (DK 7431). 2·34 ins. long by 0·59 in. deep outside. Very well finished. Locus: Bl. 7, ho. VIII, rm. 22. Level: – 16·3 ft.

No. 91 (DK 8732). 6·1 ins. long. Seems to have been discarded unfinished owing to a fracture in the shell. Locus: Bl. 7, ho. III, rm. 44. Level: – 18·3 ft.

These utensils have been described as ladles as they are admirably shaped for that purpose, but no example has yet been found with the handle perforated for it to be hung up. They could have been used for ladling both hot and cold liquids, though nothing could have been cooked in them as contact with fire would have calcined the shell.

Shell Dishes (*Pls. CV, 9; CVI, 44; CVIII, 1*).

The handleless, dish-like shell vessel, No. 9 in Pl. CV (DK 10563), was cut from another species of shell; and this kind of vessel is very rarely found at Mohenjo-daro, but more commonly so in Sumer. Possibly the shell from which it was cut, which I have not been able to identify with certainty,[1] was uncommon and its sources more accessible to the people of Sumer than to the ancient inhabitants of Sindh. This dish, which is 6·4 ins. long by 1·8 ins. high, and well made though somewhat irregular in shape, was carefully rubbed down but not polished.[2] It must have been used for some coarse substance; for it would not have held a liquid or any finely ground solid owing to being perforated in several places by well drilled holes, whose obliqueness suggests that they were made by some marine parasite. These holes may, however, have been plugged with fillings that have dropped out or decayed in the course of time. Locus: Bl. 9, ho. I, rm. 47. Level: – 4·3 ft.

No. 44 in Pl. CVI (DK 11768). A shallow, roughly finished dish of somewhat irregular shape made from part of the wall of a *sank* shell. 2·29×2×0·5 ins. It appears once to have held some red substance, of which traces remain. Possibly it was used for rubbing down red ochre. Locus: Central Street, bet. Bls. 8A and 21, rms. 40 and 12. Level: – 13·5 ft.

[1] It was possibly *Strombus caciniatus, Dilwyn.*

[2] Any original polish may have disappeared owing to the saltiness of the soil.

Shell Receptacle (*Pl. CVI, 36*).

No. 36 in Pl. CVI (DK 12121). 3·2 ins. long. This vessel was made from another kind of shell from that used for the ladles. The removal of the inner whorls of the shell must have been somewhat difficult owing to the space being so limited in which to operate the cutting tool, and as a result the interior is somewhat rough. The excrescences on the outside of the shell were carefully removed so as to leave a smooth, semi-polished surface. The edge of the aperture was then decorated with incised lines, and the mark left by the removal of the spire was also carefully accentuated with a graver. This object has been identified as a lamp (*cf.* a shell lamp from Ur)[1] but a vessel of such a useful shape may have served several other purposes. Locus: West Street, bet. Bls. 15 (V) and 18, rms. 26 and 65. Level: – 7·8 ft.

Handles (*Pls. CV, 56; CVIII, 13; CX, 15, 24; CXI, 82*).

No. 56 in Pl. CV (DK 12874). Portion of antler. 4·08 ins. long by 1·26 ins. in diameter at the thickest part. This handle was made by boring a tapering oval hole, 3·2 ins. deep and 0·42 by 0·31 in. at the mouth, in the larger end of an antler whose top was cut off square. This handle was probably used for a knife or chisel and is the first example that we have found of horn being used for this purpose. Locus: Bl. 9A, ho. VIII, rm. 51. Level: – 10·3 ft.

The antlers of both the Kashmīr stag and the Sâmbar deer have been found in the ruins of Mohenjo-daro, the horns of the latter being very common indeed. Owing to the absence of other skeletal remains of these animals, Col. Sewell, Director of the Zoological Survey, has suggested that their horns were imported for their medicinal properties, as at the present day.[2] It is interesting now to find that sometimes, even if rarely, this material was used for making handles. Why it was not more extensively employed for this purpose, it is difficult to say; perhaps it was too expensive, and a cheaper and more plentiful material, such as wood, was preferred.[3]

No. 13 in Pl. CVIII (DK 8791) (see also Pl. CX, 15). A short handle, 2·4 ins. long by 0·55 in. in diameter. Pottery; no slip. Four shallow grooves round the middle. Locus: Long Lane, bet. Bls. 7 and 9 (VIII). Level: – 18·3 ft.

No. 82 in Pl. CXI (DK 7721). 3·26 ins. long by 1·09 ins. in diameter. Pottery; with a red slip. Locus: First Street (21). Level: – 16·9 ft.

These two last handles are new to us, and they have been identified by a member of my staff as similar to handles now made in wood that are fastened at either end of the cord wound round the vertical post of a primitive butter-making machine, which is given a rotary motion by two people opposite to one another each pulling in turn at an end of the cord. This seems a very likely interpretation as both these pottery handles were obviously intended to have a cord attached to them.

[1] Woolley, *Antiquaries Journal*, vol. VIII, pl. VII, 2. See also *Anthropology Memoirs*, Field Museum, Chicago, vol. I, pl. XXXVIII, fig. 3. I agree, however, with M. Watelin that these shell objects can hardly have been used as lamps; *Excavations at Kish* (IV), pl. XIX, 8; pp. 25, 26.

[2] *Mohenjo-daro and the Indus Civilization*, chap. 31, pp. 659, 671.

[3] We have direct evidence that wood was sometimes used, but very few examples have survived the ravages of time and damp (Pl. CXXXI, 27, 33).

No. 24 in Pl. CX (DK 9083). 2·24 ins. long by 0·28 in. in diameter at one end and 0·22 in. at the other. Faience; with now no trace of colour. Has a blind longitudinal hole, 2·1 ins. long by 0·11 in. in diameter. If this be a handle, it must owing to its fragility have been used for some very special purpose. Locus: Bl. I, S. W. wing (II), rm. 32. Level: – 19·8 ft.

Cake-moulds (*Pls. CV, 45; CVI, 45; CIX, 1, 2*).

Cake-moulds of this or any other shape are very rarely found, and even then they are usually broken. Judging from the places in which they have been unearthed, they seem to have been used in ordinary kitchens and not exclusively by confectioners. Metal moulds of exactly the same shape, as though cut from a large shell, are used at the present day in the Madras Presidency for the so-called "Nilgiri pancakes".

No. 45 in Pl. CV (DK 10757). Well baked, light red pottery; no slip. 0·65 in. high outside; estimated diameter 3·8 ins. Hand-made, not moulded; with a flat, somewhat unfinished base. Locus: Bl. 8A, rm. 44. Level: – 4 ft.

No. 45 in Pl. CVI (DK 11922). Pottery; no slip. 0·6 in. high outside by 2·84 ins. in diameter. Hand-made, with finger imprints here and there between the whorls. Flat, well finished base. Locus: Bl. 23, ho. I, rm. 2. Level: –9 ft.

No. 1 in Pl. CIX (DK 8564). Pottery; light red in colour and containing a little mica. This cake-mould is quite a new shape, rectangular in outline with rounded corners. It is some 5 ins. long by 3·1 ins. wide by 0·5 in. deep outside, the convolutions being 0·4 in. deep. The base was only roughly finished, but the interior of the mould had been carefully smoothed over. Locus: Bl. 9, ho. VII, rm. 47. Level: – 20 ft.

No. 2 (DK 9355). Pottery; light red in colour with a thick, cream slip. 5·3 ins. in diameter by 0·65 in. thick. Convolutions 0·46 in. deep. Locus: Bl. 7, ho. IX, rm. 29. Level: – 21 ft.

The round moulds are found in both the upper and lower levels, whereas the rectangular mould was unearthed in an early stratum.

No evidence has been found that these cake-moulds were themselves made in moulds, although the regularity of their convolutions suggests that this was the case. It should be remembered, however, that even if a mould had been used for this purpose, the subsequent finishing and firing would produce slight irregularities. I do not see how a shell could have been used in the making of the actual cakes, but it is very probable that one was used in making the pottery moulds. Great smoothness and no undercutting are essentials in a cake-mould, otherwise the cake could not easily be removed.

Gutters and Runnels (*Pls. CIV, 18, 19; CVII, 18, 19; CVIII, 18, 26, 29*).

That gutters were used at Mohenjo-daro has been proved by the frequent discovery of fragments of bricks with channels cut in them, as in Pl. CVIII, 18, which is the most perfect example of its kind that we have yet found. As I have remarked before, however, these brick gutters could not have projected far from the walls. We have since found pottery gutters, especially constructed for this purpose, of quite considerable length (Pls. CIV, 19; CVIII, 29); and

though they were sometimes used for ground drainage their original use was in all probability to carry off water from the roofs. In the case of high buildings with only narrow lanes between, it is necessary to use gutters that project very considerably; firstly, so that the water shall not run down the house walls, and, secondly, that it may not be poured on the passer-by, but as far towards the middle of the street as possible. Those who are acquainted with Eastern streets must have noticed the long gutters that jut out from the house-roofs—and perhaps have been unfortunate enough to receive their contents. In the older houses, gutters of this kind are the sole means of draining the rain water from the roofs. There is every probability that the same conditions prevailed when Mohenjo-daro was a flourishing city. Then, as now in many parts of India, wood was probably used to make most of the gutters, which would explain why so few have survived, and those made of brick or pottery.

Plate CIV.—No. 18 (DK 6721) (see also Pl. CVII, 19). Brick, 11·5×5·7×2·2 ins., with a roughly hacked groove, 0·95 in. deep, bounded by a wall, some 0·5 in. thick, on either side.[1] Locus: Fore Lane, bet. Bls. 1 and 7 (VII). Level: —11·7 ft.

No. 19 (DK 12826) (see also Pl. CVII, 81). Light red pottery; no slip. Two well made gutters, averaging 27·6 ins. in length, with tapering channels, some 4·3 ins. wide at one end and 3·1 ins. at the other. The sides of these gutters are about 0·7 in. thick and the channel 2·7 ins. deep. Four slight cuts across one side of one of these gutters evidently served for identification. Though clearly intended to be roof gutters, these two examples had been laid as a drain in an earthen floor, for which purpose their tapering shape made them well suited. Locus: Bl. 9, ho. I, rm. 48. Level: – 11·1 ft.

Plate CVIII.—No. 18 (DK 8903). Brick, 11·25×5·5×2·65 ins., with a carefully cut channel, 2·45 ins. wide by 1·1 ins. deep. Possibly a number of these bricks were placed end to end to form a horizontal drain. Locus: Bl. 7, ho. IV, rm. 50. Level: – 19·3 ft.

No. 26 (DK 3946). Pottery; with red ochre stains which suggest that it was once coated with a red wash. 6·5 ins. long by 3·8 ins. wide by 3·2 ins. high. Sides and base, 0·7 in. thick. Both ends complete. Locus: Lane bet. Bls. 2 and 3. Level: – 18·1 ft.

No. 29 (DK 8974). Pottery, 16·6 ins. long by 4·5 ins. wide by 2·45 ins. high. Channel, 2·65 ins. wide by 1·45 ins. deep. Somewhat roughly made, but none the less efficient.[2] Locus: Bl. 9, ho. VI, rm. 79. Level: – 20·4 ft.

Pottery gutters of this description were not, of course, confined to ancient India. Probably the earliest examples are those from Jemdet Nasr in Mesopotamia,[3] which are practically identical in shape with the gutters found at Mohenjo-daro.

1 See Pl. XXXVII, b, for an illustration of the manner in which some of these cut bricks were used.

2 *Cf.* two gutters lately found by Frankfort at Tell Asmar in Mesopotamia; *Tell Asmar and Khafaje*, Oriental Institute, Univ. Chicago, No. 13, fig. 34, p. 80.

3 *Anthropological Memoirs*, Field Museum, Chicago, vol. 1, No. 3, Pl. LXXVI, fig. 9.

Drain-pipe (*Pls. CVIII, 30 ; CX, 35*).

Prior to 1927, Hargreaves found several drain-pipes of this type in the HR Area,[1] but the specimen that we now illustrate is rather better made. It is 18·8 ins. in length, the outside diameter of its base is 5·75 ins. and it is 0·4 in. thick. The flange at its spigot end is 0·5 in. thick and projects 0·6 in. This drain-pipe was made on the wheel from ordinary pottery clay and was coated with a thick cream slip. It is heavily grooved by the fingers inside. Its top was enclosed in a square brick construction (Pl. XXXIX, d). Locus: Bl. 9, ho. VI, rm. 34. Level: — 15·7 ft.

These drain-pipes with their very scientific joints are by no means peculiar to Mohenjo-daro. They have been found at Knossos, where they date from the M. M. I Period.[2] At Ur Woolley has found drain-pipes, about 3 ft. long and 6 ins. in diameter, with a flange at one end, which he dates to 3,500 B. C.[3] The latter are not so elaborately made as the specimens found at Mohenjo-daro, none the less they suggest the existence of an elaborate drainage system in Sumer at an even earlier date.[4]

Cages (*Pls. LXXXI, 6 ; CIV, 7 ; CVII, 16*).

No. 7 in Pl. CIV (DK 3498) (see also Pl. CVII, 16). Light red pottery; with a cream slip. Present dimensions: 6·1 ins. by 4·1 ins. by 1·57 ins. high. Well made, with a flat, smooth, even base. This curious object, the first of its kind to be found at Mohenjo-daro, must, I think, be a cage for either a small animal or bird. Unfortunately, one end of it is missing and it is impossible to estimate its original length. The sides and the remaining perfect end are 0·42 in. thick and have vertical apertures cut in them at regular intervals. Each aperture and the bars between average 0·57 in. in width. Support is given to the theory that this object was a cage by the partitioned portion at the end, which certainly looks like a feeding-trough. Locus: Bl. 7, ho. VIII, rm. 16. Level: — 7 ft.

Certain pottery objects found in previous years had already led us to suspect that insects were kept either as pets or mascots,[5] and it is not surprising to find that larger animals were kept as well. I have already suggested that the upper part of the very curious objects, apparently of a cult nature, invariably to be seen in front of the urus bull on the seals may have been a birdcage. Taking all these points into consideration, it is perhaps reasonable to conclude that the people of the Indus Valley civilization were wont to keep small animals in confinement, though whether as pets or for religious reasons, it is impossible to say. That the cult of the animal was a feature of social life in the Indus valley is proved by the invariable appearance of some kind of animal on the square seals and this cult may have embraced the smaller animals also, even though they are only represented by a few models in pottery and faience and never pictorially.

[1] *Mohenjo-daro and the Indus Civilization*, pl. LXXXIII, 5, pp. 180, 280.

[2] Evans, *Palace of Minos*, vol. I, pp. 141-2, fig. 103.

[3] *Antiquaries Journal*, vol. VI, pl. LIX.

[4] This dating may have to be amended. A later drain of a pattern very similar to those of Mohenjo-daro and dated to 2,200 B. C. has recently been illustrated by Frankfort; *Illust. Lon. News*, Oct. 1st, 1932, p. 505, fig. 8.

[5] *Mohenjo-daro and the Indus Civilization*, pl. LXXXIV, 1, 2.

In the Baghdad Museum there is an object that is described as a model house, from Tellôh if I remember rightly, made of straw-coloured pottery, pierced all over with a number of small, round holes.[1] If my conjecture that it is really a cage be correct, we have here another point of connection between the cultures of Sumer and the Indus valley.

The model cage illustrated in Pl. LXXXI, 6, is described in Chapter IX, p. 314.

Traps (*Pls. LIV, 16, 17, 20–2 ; CVII, 22*).

Nos. 16 and 17 in Pl. LIV (DK 12299) illustrate an object, 9·7 ins. long by 4·23 ins. wide by 4·55 ins. high, which may be a mouse-trap, whose roomy interior is 8·7 ins. long by an average of 3·1 ins. wide and high, the entrance being a trifle smaller. This trap was made on a wheel from the usual clay, with an admixture of lime and mica, and it was cut off from it with a string in the usual way, the edge of its open end showing clearly the marks left by the cord. The base was then flattened to prevent it from rolling ; and holes were drilled in various parts of it after it had been baked.

There are three holes, averaging 0·3 in. in diameter, in a line along the top, and of these the one nearest the mouth of the trap was walled round by an added piece of clay to a height of 0·5 in. The two holes of about the same diameter as those in the top, which are seen at either side, were perhaps made to admit light and air ; I can see no other use for them. A hole at the closed end of the trap probably took a peg, to which was tied one end of a spring made by twisting a cord, the other end being attached to a rod set in one of the holes in the roof of the trap. From this rod a noose would have been passed down through the hole above the entrance, which was perhaps rimmed to prevent the fraying of the noose. Through the third hole in the top of the trap the bait was presumably attached to a trigger. Locus : Bl. 21, ho. II, rm. 15. Level : – 8·4 ft.

Nos. 20-2 in Pl. LIV (DK 8140) are three different aspects of another trap, made of light red pottery with a very thick, cream slip. This trap, which is 6·15 ins. long by 3·3 ins. wide and 3·1 ins. high has a round interior, 1·88 ins. in diameter by 3·4 ins. deep. The base is fairly flat and smooth, and there is an unbroken wall at one end. In each of the two upward-projecting lugs on the top of this trap there is a horizontal hole which evidently served as a pivot-hole for something that was swung between the lugs over a small rectangular aperture, 1·9×0·34 ins. in size, that communicates with the interior of the trap.

In the top of this trap above the mouth there are four vertical holes, two large and two small. The outer, larger ones, which are 0·3 in. in diameter and have their counterparts in the floors of the trap, seem to have accommodated two upright rods which required firm support. The two smaller holes, each 0·1 in. in diameter, which are close together between the larger ones, I imagine took the noose. That a noose was, in fact, used with this trap instead of a door is implied by the short length of the interior, the relation of which to the rest of the trap is shown in the longitudinal section (Pl. CVII, 22).

[1] No. 6794 ; its date is apparently unknown.

A deep, roughly cut slot, 1·05 ins. long by 0·55 in. wide, in the end of the trap penetrates it obliquely (Pl. CVII, 22) to a depth of 1·95 ins., but does not communicate with the interior. This slot may well have held a stiff spring, such as a piece of cane or bamboo, that was bent over to the front of the trap when it was set.[1] Locus : Bl. 9, ho. VIII, rm. 15. Level : —9·8 ft.

Bricks of Unusual Size and Shape (*Pls. LIV, 15; CVIII, 15, 16, 24*).

No. 15 in Pl. LIV (DK 12636) is a large-sized brick, some 22·6×11·6×3 ins., of which we have found a few specimens scattered about the site. Though before now we have suspected that these large bricks were made expressly to cover drains, not until the season 1930-31 were they found actually roofing a drain (Pl. XLIII, d). Why bricks of this size were not more extensively used to cover wide drains is not known; the rough stone slabs that were commonly used for this purpose in the SD Area (Pl. III, a) must have been both expensive and difficult to obtain. Possibly it was found that if very large bricks were used in places subject to a good deal of traffic they were liable to break and, in consequence, stone was used instead. Locus: Bl. 6A, rm. 42. Level: — 6 ft.

Plate CVIII.—No. 15 (DK 8746) is an ordinary brick, in one side of which a depression, 3·25 ins. square by 0·95 in. deep, had been roughly hollowed out. From one end of this depression a channel, 3·9 ins. long by 0·8 in. wide by 1 in. deep, grades up to the face of the brick. The depression in this brick may quite well have served to hold offerings; indeed, in appearance the brick resembles some of the offering-trays of ancient Egypt. Locus: First Street (1). Level: — 21 ft.

No. 16 (DK 8928) also is an ordinary brick, 11·4×5·6×2·55 ins. in size, with a deep lunate excision on one side of it. The cutting which is slightly oblique was very roughly done. One is at first tempted to regard this brick as a head-rest, though we have no other evidence whatever that head-rests were used at Mohenjo-daro. The elaborate head-gear worn by some of the female figurines, which head-dress may also have been that of the common people, would certainly have necessitated the use of some kind of head-rest at night; but the majority of these would probably have been made of wood and have perished. The obliqueness of the cut-out portion certainly suggests a head-rest.[2] Locus: Bl. 7, ho. VI, rm. 66. Level: — 18·7 ft.

No. 24 (DK 8586). This brick, which is 11·7×5·7×2·73 ins. in size, has a well cut hole in its centre, some 2·5 ins. in diameter, and may have been used as a weight for some form of apparatus. If the *Shadûf*, or water-lifter, was in use in ancient Sindh, two or more such bricks might have been used to weigh it—one alone would have been rather too light. Alternatively, this object is comparable with No. 25 in Pl. CVIII, 25, which is certainly a door-socket. Locus: First Street (5). Level: — 23·5 ft.

[1] On the other hand, the slot may have accommodated a short stake to hold one end of a twisted cord that served as a spring.

[2] I cannot find any record of the head-rest being used in India to-day. It may possibly be found in Burma and certainly east of that country; and head-rests are, of course, very common in Africa.

Door-sockets (*Pl. CVIII, 7, 25*).

No. 7 (DK 7000) is half a brick, 8·92 ins. long, in which a cavity, 2·12 ins. in diameter by 1·15 ins. deep, shows much wear. That this door-socket may have been built into the brickwork of a door-jamb is suggested by its projecting side. This socket is of further interest in that the clay of which the brick was made was mixed with small fragments of brick, apparently as a dégraissant. Locus: Long Lane, bet. Bls. 10 and 12. Level: — 23·4 ft.

No. 25 (DK 8767) shows a brick, 10·5×5·8×3 ins. in size, in which the well-cut central hole, 2·2 ins. in diameter, has its edge chamfered to 3·1 ins. in diameter. This edge shows marked signs of wear. With a socket of this kind, the door would certainly not have been easily displaced owing to the depth of the hole in which the door-post rested. Locus : First Street (18). Level : — 20·2 ft.

Triangular Plaques (*Pls. CIV, 11; CXII, 4*).

Curious, roughly made triangular plaques of indifferently baked pottery, whose use we have not been able to ascertain, are found occasionally in streets as well as houses. Though their shape, make, and material are nearly always uniform, they vary considerably in size, the first one illustrated being a large specimen; and that they were in frequent use and were home-made seems to be indicated by the roughness of their make. I can recall nothing similar in other ancient countries, except certain pottery models of loaves in ancient Egypt and the perforated loom-weights found at Verulamium and in the Glastonbury lake-village.[1] The plaques of Mohenjo-daro, however, are never perforated and could hardly, I think, have served as loom-weights.

No. 11 in Pl. CIV (DK 4666). Drab-coloured pottery; no slip. 5·95 ins. across at the widest part; 1 in. thick. Roughly made and indifferently baked. Locus: Bl. 9, ho. VI, rm. 79. Level: — 8·4 ft.

No. 4 in Pl. CXII (DK. DG. 96). Pottery. 3·35 ins. across; 1·28 ins. thick. Roughly baked. Carelessly made, and had been laid on chopped straw to dry before baking, as shown by the imprints of the straw on one side. Locus: Bl. 7 (deep excavation). Level: — 42·6 ft.

Shell Covers or Ornaments (?) (*Pls. LXXI, 5, 6; CV, 42; CVI, 27; CIX, 34; CXXV, 28*).

Nos. 5 and 6 in Pl. LXXI (SD 2786). Shell cover or ornament, of which two parts were found together. 0·75 in. high and 2·4 ins. in diameter. Locus: SD Area, Bl. 1, rm. 61. Level: + 2·68 ft.

No. 42 in Pl. CV (DK 12157) (see also Pl. CXXV, 28). 3·45 ins. high by 1·2 ins. in diameter before being broken. Evidently two of these objects, of which we have found only the one, were fitted together to form a kind of cover or cap. Our find, though roughly finished inside, was carefully smoothed down outside, all the excrescences of the original shell being removed, and was decorated with lines made with a saw. It is probable that these lines were once filled in with black and red paste by way of ornamentation.[2] The top is flat, with a slightly irregular, natural hole, in which, perhaps, a metal staple and ring were fitted to lift the cover made from this object and its fellow. Locus: Lane bet. Bls. 9 (IX) and 9A. Level: — 1 ft.

[1] Wheeler, *Antiquity*, June, 1932, pp. 140-2, fig. 3 (1).

[2] As in Pl. CIX, 34.

No. 27 in Pl. CVI (DK 11341). Half of a shell cover, 0·98 in. high by 3·5 ins. in diameter, with slightly flattened top. The interior is rough; the outside smooth and decorated with bold, saw-cut lines. The companion piece has not been found; indeed, only once have the two parts of one of these objects been found together. Locus: Bl. 27, ho. I, rm. 1. Level: — 7·1 ft.

No. 34 in Pl. CIX (DK 6450). A third part of a cover which was made in three pieces instead of the more usual two. 2·4 ins. across the lower edge. Along one side are two parallel incised lines, the outer one of which was filled in with a black pigment and the inner one with red. Along each of the other sides is a single line filled in with red. When perfect, this cover must have been very attractive; it was unusually thin and carefully made. Locus: Fore Lane, bet. Bls. 1 (III) and 7. Level: — 16·3 ft.

The pronounced conical form, No. 42 in Pl. CV, is the first of this shape to be found, and it is possible that it was worn as an ornament on the head like the smaller, metal cones that we have found at Mohenjo-daro.[1] Dr. J. H. Hutton compares the flatter shell caps which are much more commonly found in the upper than in the lower levels with certain modern shell earrings of Assam. Though I have hitherto regarded these objects as jar-covers, it must be admitted that none have yet been found associated with pottery. Some very considerable skill must have been needed to shape and fit the parts together, for it seems that only one section could be cut from a shell.

Writing-tablets (?) (*Pl. CV, 37, 38*).

No. 37 (DK 12406). Light red pottery; no slip. 7 ins. long by 3 ins. wide by 0·4 in. thick. Rather roughly made. Edges square cut, except for one which is bluntly rounded, and very smoothly finished compared with the surface of the two flat sides. Locus: Bl. 8, ho. III, rm. 30. Level: — 8·8 ft.

No. 38 (DK 5602). Light red pottery; no slip. Present length 3·95 ins., by 3·15 ins. wide and 0·72 in. thick. There is a hole, 0·13 in. in diameter, through the handle for suspension. Locus: Long Lane, bet. Bls. 10 and 12. Level: —10 ft.

The use of these two objects is as yet uncertain, but I suggest that they were writing-tablets. It would, of course, be difficult to inscribe anything upon their present very rough surfaces but these may once have been covered with some smooth preparation that would allow of writing or numbers being washed off when finished with. In shape these objects are exactly like the large wooden writing-boards that are used at the present day by children in the Panjāb and elsewhere.[2] These boards are first prepared with a thick, white coating which is washed off with the written lessons and renewed the next day. I do not think these tablets were labels for merchandise, as only one has a perforated lug; it is, moreover, so thin as to be unsuitable for the purpose.[3]

[1] See *Mohenjo-daro and the Indus Civilization*, pl. CXLVIII, 2, and pl. CXXXV, 7, of this book. If the more conical of these shell pieces had been used as head ornaments and the flatter ones as ear-pieces, it would explain why their interiors were never smoothed down.

[2] Panjābi, *Phatti*; Urdu, *Tukhti*.

[3] *Cf.* two similar objects on an archaic cylinder seal from Susa; *Mém. Dél. en Perse*, t. viii; p. 18, fig. 40.

Quite independently, Sir Flinders Petrie has compared a sign in the Mohenjo-daro script[1] that resembles these two objects with a " writing-tablet ", which interpretation bears out my view.[2] The tablets in the signary are marked with parallel lines, perhaps to aid the scribe.

Label - (*Pl. CIX, 18*).

Not unlike these writing-tablets in shape is the obvious label, No. 18 in Pl. CIX (DK 6087), which has a small hole in the lug for tying it on. It is 3·13 ins. long by 0·33 in. thick. This label is roughly made and has no slip, but the surface is sufficiently smooth for writing. Locus: Bl. 4, rm. 15. Level: — 20·4 ft.

Bone Implement (*Pl. CV, 55*).

No. 55 in Pl. CV (DK 5753). 15·4 ins. long across the chord; greatest width 1·62 ins., 0·4 in. thick. The inner edge of this implement shows considerable wear on both faces and bears a number of fine, oblique lines similar to the markings on a weaver's slay; but owing to its curvature it is difficult to see how this particular object could have been used in weaving. It was evidently made from the rib of an animal, and the polish, especially of its edge, is evidence of much use. It would have served to scrape down or polish the surfaces of large jars; but if so used, the striations left on its edge would tend to be vertical and not oblique, unless the stroke were diagonal. The surfaces of some of the larger jars, especially those that were coated with a slip, occasionally show signs of having been rubbed down. I have found by experiment that by a slight turn this way or that this bone tool can be readily adjusted to storage jars of varying diameters. Locus: Fore Lane, bet. Bls. 4 and 7. Level: — 11 ft.

Shell Rods (*Pl. CV, 58, 59*).

The use of these two shell rods has not been ascertained. They can hardly have been intended to be cut up to make disc-beads, or they would not have been so carefully smoothed beforehand. Nor does it seem likely that it was intended to make a single long bead of each, of No. 58 in particular; for though a bead of this shape, in either shell or pottery, is a feature at Jemdet Nasr and also Ur, long barrel-cylinder beads of shell are so far unknown at Mohenjo-daro.

No. 58 (DK 5282). 3·61 ins. long; 0·59 in. in diameter at the middle and 0·38 in. at the unbroken end. Very carefully smoothed and shaped, but unpolished. Locus: Bl. 1, ho. V (42). Level: —7·8 ft.

No. 59 (DK 21731). Present length, 2·73 ins. Tapers slightly from 0·54 in. in diameter at one end to 0·49 in. at the other. Excellently shaped and carefully smoothed, but unpolished. Locus: Bl. 9A, ho. VIII, rm. 46. Level: — 7·4 ft.

Ivory, Shell and Pottery Hooks (*Pls. CVI, 31; CVIII, 8, 11; CIX, 11–13; CX, 1*).

These hooks of ivory and shell are similar in shape. They were probably used to fasten wooden boxes, one hook being set in the lid and another immediately

[1] Amongst others, see seals 92, 280, 312, 519, of this book.

[2] *Ancient Egypt*, II, 1932, p. 35.

below it in the box itself. A cord looped around the two would have fastened the lid down securely, and if sealed would have prevented the contents of the box being got at. I have seen a box with very similar fastenings in use in the Panjāb.[1]

No. 31 in Pl. CVI (DK 12041). Ivory. 2·92 ins. long with an oval head 0·7×0·6 ins. in section, and the stem tapering from 0·58 in. in diameter down to 0·5 in. at the end. The top of the head is slightly rounded and the other end cut square with the sides. The finish of the upper portion of this hook is good, with traces of the original polish still remaining. About half the stem was deliberately rubbed down with a rasp to give it a grip on the sides of the hole in which it was fitted. Locus: Bl. 18, rm. 31. Level: – 7·4 ft.

No. 8 in Pl. CVIII (DK 5182). Ivory. 2·43 ins. long with the stem rectangular in section, 0·72 ins. wide and 0·37 in. thick. The hook is here constituted by the cutting out of a semi-circular piece behind the head. Locus: Loop Lane, bet. Bls. 12 and 12A. Level: – 16·3 ft.

No. 11 in Pl. CVIII (DK 5635). Shell. 3·42 ins. long by 1·1 ins. in diameter at the widest part. End of the stem missing. This hook was cut with a saw and shows little evidence of wear. Locus: Bl. 1, western Court (10). Level: – 13·6 ft.

No. 1 in Pl. CX (DK 6059). Ivory. 2·42 ins. long, with the stem 0·4 in. in diameter. Was found together with another of slightly smaller size. Locus: Bl. 1, ho. VIII, rm. 63. Level: – 20 ft.

The three very curious double-hooks made of pottery, Nos. 11-13 in Pl. CIX, are entirely new to us and it is difficult to see what their purpose might be. The material of which they were made would not admit of their being used for heavy weights, nor could they have been subjected to much knocking about. They may perhaps have been used in a line to hold dyed thread to be dried, but this is, of course, a mere conjecture. They seem, however, to have been made expressly to give as much support as possible to some material that was liable to sag. Up to the present, hooks of this shape have been found solely in the lower levels, and only these three specimens. They are not sufficiently well made to be cult objects, though it has been suggested that they may represent thunder-bolts.

No. 11 (DK 7414). Pottery; cream slip. 3·65 ins. long by 1·35 ins. greatest width. Locus: First Street (5). Level: – 23·4 ft.

No. 12 (DK 7303). Pottery; cream slip. 3·55 ins. long by 1·15 ins. in widest part. Roughly made. Locus: Bl. 7, ho. VIII, rm. 22. Level: – 14·2 ft.

No. 13 (DK 5356). Pottery; no slip. 3·45 ins. long by 1·25 ins. wide. Roughly made. Locus: Crooked Lane, bet. Bls. 3 and 5. Level: – 15·1 ft.

Ivory Batons (*Pls. CVI, 42, 43; CIX, 5, 6; CX, 12, 13, 20; CXXV, 3*).

Several tapering, ivory batons have been found in recent years that were unknown prior to 1927, though they have a considerable range in level. They are attractively shaped and ornamented, but their purpose is quite unknown;

[1] Pegs and lashings were also used in Egypt from early times for fastening the lids of toilet and other boxes. The Egyptian pegs, however, usually had round, flat heads; Carnarvon and Carter, *Five Years' Explorations at Thebes*, pls. XLVI (1); XLVIII (1, 2).

and they may even have had more uses than one. Though these batons are all very carefully made and finished, there is little variety of decoration and they were evidently all made to one pattern, with the sole difference that one specimen only has a rounded top. It is probable that they were turned on a lathe.

Plate CVI.—No. 42 (DK 11734) (see also Pl. CXXV, 3). 7·8 ins. long by 0·9 in. in diameter at the wider end and 0·44 in. at the other. From the semi-pointed end up to about the middle, this baton shows the polish of much use—so much so that a band of decoration similar to that below the head had been partially worn away. This rod is extremely well finished, and the incised decoration at each end was once filled in with black paste. Possibly it served as a pin for a cloak, though it certainly seems rather large and heavy for this purpose. Locus: Bl. 22, rm. 4. Level: —6·4 ft.

No. 43 (DK 11658). Now 3·45 ins. long; 0·66 in. in diameter at the head, and 0·5 in. at the broken end. Probably served the same purpose as No. 42. It differs, however, in having a flat top, but the band of ornamentation, though of coarser workmanship than in No. 42, was also filled in with black. Locus: Bl. 23, ho. II, rm. 13. Level: —7·3 ft.

Plate CIX.—No. 5 (DK 7331) (see also Pl. CX, 20) is 5·05 ins. long by 0·56 in. in diameter at the head which is flat. The point is unbroken but blunt, and the surface semi-polished. The incised, hatched decoration was formerly filled in with black. Locus: Bl. 5, ho. I, rm. 4. Level: —16·3 ft.

No. 6 (DK 8251) (see also Pl. CX, 13). 2·7 ins. long by 0·44 in. in diameter at the head, which is flat. Well made and much polished by wear. Incised decoration beneath the head once filled in with black. Locus: Bl. 7, ho. III, rm. 48. Level: —14·8 ft.

No. 12 in Pl. CX (DK 7272). 2·62 ins. long; 0·5 in. in diameter at the head and 0·4 in. at the base, which is unbroken and never had a point, unless, as seems possible, it had been accidentally broken off and subsequently smoothed down. Locus: First Street (5). Level: —18·9 ft.

Perforated Square and Rectangular Rods of Unknown Use (*Pls. CV, 29, 31, 53; CXXXVIII, 56*).

Nos. 29 and 31 in Pl. CV (DK 3679). A rectangular, ivory rod, somewhat roughly made with its sides cut slightly askew. It measures 3×0·5×0·4 ins. and is perforated by three holes averaging 0·16 in. in diameter. Round the centre of this rod is a band of copper, 0·65 in. wide, which is apparently secured by a copper rivet, though this rivet may have been part of a hook by which the rod was either suspended from or supported on some other object. There is the same incised decoration on all four sides, namely, blocks of double hatching at each end and in the middle, separated by the device of concentric circles which is so well known on the ivory sticks of Mohenjo-daro. In fact, this rod seems to be one of the familiar ivory sticks adapted to another purpose (Pls. CXXXVIII; CXLIII). Locus: Bl. 3, ho. V, rm. 11. Level: —8·7 ft.

No. 53 in the same plate (DK 8007) (see also Pl. CXXXVIII). Ivory rod. 2·66 ins. long by 0·3 in. square in section, with one end broken off. The holes at one end of this rod are 0·11 in. in diameter and only penetrate to a depth of 0·12 in. Between these and a hole at the other end, which was presumably once the middle of the rod, are two more holes cut in a face at right angles to the other two holes. The latter pair, though of the same diameter as the other two,

are drilled right through the rod. This object is well made and polished, but its metal band—if it ever existed—has long since disappeared. Locus: Bl. 1A, rm. 89. Level: – 8·3 ft.

These two rods resemble one another in that they are both four-sided with a hole cut through the centre, apparently for suspension. They differ, however, in the number and positions of the subsidiary holes. Though No. 29 certainly suggests the bar of a pair of scale-pans,[1] there is the difficulty that the holes to take the cords for the pans should surely be at the ends of the rod, and not towards the middle. In No. 53, moreover, the holes at the other end of the rod are blind.

Jar-stopper (*Pl. CIX, 19*).

There can be no question that this object (DK 7393) was used as the stopper of a narrow-mouthed jar.[2] It is made of ivory and is 1·75 ins. long by 0·75 in. in diameter at the wider, and 0·49 in. at the narrower end. Locus: Bl. 3, ho. VI, rm. 47. Level: – 91·4 ft.

Jar-stoppers, except those of the types illustrated in Pls. LVII, LXII, are exceedingly rare; but some of those used for the narrow-mouthed jars may conceivably have been made of wood and have perished.

Peg (*Pl. CVIII, 14*).

No. 14 in Pl. CVIII (DK 5738) is part of the horn of a deer or antelope, 6·05 ins. long, with a groove cut round it near the broader end. Rather short for a tent-peg, it was more probably used as a hook to which to tie something. Locus: Bl. 4, rm. 5. Level: – 18·4 ft.

Rolling-pins (*Pls. CIV, 10; CVIII, 22, 23*).

No. 10 in Pl. CIV (DK 11109). Cylindrical; 4·74 ins. long by 1·8 ins. in diameter; ends at right angles to the sides. Light grey chert, slightly veined. This object was so carefully made and polished that it may have been turned on a lathe after first being carefully flaked into form. Its sides are remarkably plane, except at the extreme ends where there is a very slight narrowing. It seems subsequently to have been used as a hammer, which alone would account for its now chipped condition. Locus: Bl. 8A, rm. 42. Level: 7·7 ft.

No. 22 in Pl. CVIII (DK 9401). Cylindrical; 5·4 ins. long by 1·7 ins. in diameter. Light red pottery; cream slip. Slightly warped in baking. Locus: Fore Lane, bet. Bls. 1 and 10 (1). Level: – 23·7 ft.

No. 23 in Pl. CVIII (DK 9037). Cylindrical; 4·75 ins. long by 1·56 ins. in diameter. Pottery; cream slip. Well baked, but the surface now somewhat rough. Locus: Bl. 9, ho. VI, rm. 32. Level: – 19·4 ft.

Very similar objects to the last two have been unearthed in previous seasons.[3] Their exact use is still uncertain, but they may conceivably have been used for rolling out the dough in making the finer sorts of *chupatti*.

[1] Actual scale-pans have been found at Mohenjo-daro, especially in the lower levels.

[2] *Cf.* a shell stopper in *Mohenjo-daro and the Indus Civilization*, pl. CLVI, 6.

[3] *Mohenjo-daro and the Indus Civilization*, p. 479, pl. CXXXI, 42.

Scale-pans (*Pls. CV, 40; CIX, 32*).

No. 40 in Pl. CV (DK 11599). Light red pottery; cream slip. Hand-made. 2·7 ins. in diameter by 1·02 ins. thick, including the projecting base, from which aspect the photograph was taken. The upper side is uneven and somewhat roughly finished. There are three holes, averaging 0·1 in. in diameter, at equal distances around the edge. Locus: Bl. 8A, rm. 35. Level: – 6·9 ft.

The only explanation that I can suggest as to the use of this object is that it was a scale-pan made by a child. The regular use of weights by most of the householders of Mohenjo-daro shows that they attached considerable importance to weight, and probably in those days children were just as fond of playing with weights and scales as they are at the present day. For metal scale-pans, see pp. 476-77 in Chapter XIII.

That No. 32 in Pl. CIX (DK 7389) was a scale-pan there is no doubt. Made of pottery, it is 2·25 ins. in diameter and 0·31 in. high on the outside. It has a raised edge all round like a dish. Hand-made, and slightly out of shape. The lower side is seen in the photograph. It was suspended by means of three small holes at practically equal distances round the edge. Locus: Bl. 3, ho. VI. rm. 47. Level: – 19·4 ft.

Pottery Rings (not illustrated).

Of thick, pottery rings similar to the one illustrated in Pl. CLII, 16 (top), of the first book on the site, which I have suggested might have been used in some form of game,[1] we have found numerous examples. Frankfort has now satisfactorily identified these rings as net-weights; a large number of them have been found with the remains of a fishing net at Khafaje, a site some 10 miles east of Baghdad. These objects only occur sporadically at Mohenjo-daro and at various levels, but at both sites they seem to be of much the same date.[2]

Tubes (*Pl. CIX, 31, 47, 53*).

No. 31 (DK 8214). A tube made of a carefully cleaned-out bone, 3·55 ins. long by 0·57 in. and 0·5 in. in diameter at the ends. Diameter of interior, 0·29 in. The outside is polished by much use. Locus: Long Lane, bet. Bls. 7 and 8. Level: – 13·7 ft.

No. 47 (DK 7715). Curved tube of drab-coloured pottery; 7·65 ins. long across the chord. Outside diameter 0·93 in.; inside diameter 0·45 in. One end is complete and slightly splayed, but the other is missing. Locus: First Street (21). Level: – 16·9 ft.

No. 53 (DK 7660). Curved tube of pottery, with a smooth, red slip; 5·9 ins. long across chord. Outside diameter 0·75 in.; inside diameter 0·4 in. Well made, but one end is missing and the other splayed out to 1·26 ins. in diameter. Locus: Bl. 9, ho. VIII, rm. 16. Level: – 19·8 ft.

Though the bone tube may have served many uses, the two pottery specimens seem to have been made for an express purpose, as one end of each is splayed. No. 53, moreover, was carefully coated with a red slip, which would hardly have been so if these tubes had been used, for instance, in a furnace. As each of the

[1] *Antiquity*, Dec., 1931.

[2] *Tell Asmar and Khafaje, Oriental Institute*, Univ. of Chicago, No. 13, pp. 92, 93, figs. 41, 42.

pottery tubes has lost one end, we have no means of ascertaining their original lengths. It is possible that they were used as drinking tubes for beer and other liquids, a custom which still pertains amongst the *Chins* of Burma who use a straight hollow cane to suck up *zu*, a very intoxicating drink made from rice.[1] As is well known, drinking tubes were in common use in early Sumer[2] and in ancient Egypt also in the Eighteenth Dynasty.[3] Erman considered the use of a sucking-tube to be an importation into Egypt from the north-east.[4] Owing to the liability of pottery to break, cane or metal tubes would doubtless have been preferred to pottery ones; but we have found no metal tubes at Mohenjo-daro that are at all likely to have been used for this purpose, unless the tubes that were strung with beads of two colours (Pls. CXI, 12; CXXXVI, 24; CXXXVIII, 11) were used as sucking-tubes. The internal diameters of the latter, however, are very small, and these tubes, if so used, would have served only for very thin liquids. The curve of the two pottery tubes in question certainly suggests to me that they were used in drinking. Another possible explanation is that they were used to carry liquids in some form of apparatus, and it may be that the flared ends were intended to enable one tube to be fitted inside another.

Model Axes *(Pls. CIX, 16; CX, 34; CXII, 1).*

These two model axes are described in Chapter XIII, page 459, as they are evidently copies of metal implements.

Stone and Pottery Objects of Unknown Use.

A number of objects made of various kinds of stone and pottery, whose uses we do not yet know and whose shapes are quite new to us are described in detail below:—

No. 6 in Pl. CIV (DK 3653). Well baked, pink pottery, containing mica and lime; no slip. 1·6 ins. high by 0·3 in. thick. The internal diameter averages 2·8 ins.; the ring, carefully made by hand and showing no sign of wear, was slightly warped in baking. As is seen in the photograph, there are two projections on one side with a semi-rounded space between them. Two circular marks, each 0·62 in. in diameter, on the opposite side of the ring were clearly left by the breaking away of another subsidiary portion of the object; but what this was it is impossible to say, beyond the fact that the missing part was a different shape from the projections above mentioned. Possibly this object was a sleeve intended to slide up and down a pole; it is not unlike the lower portion of a modern candle-shade-holder in shape. Both the material and its comparative thinness make it unlikely that this object was subjected to any rough treatment. Locus: Bl. 9, ho. VI, rm. 79. Level: – 6·7 ft.

Nos. 15 and 17 in Pl. CIV (DK 4832) (see also Pl. CVII, 32). An oval plaque of soft, white alabaster, less than a third of which is missing, which may have served as the lid of a box or jar. This plaque now measures 4·86 ins. long by

[1] Liversey, *Asia*, 1931, p. 500.

[2] For a well-preserved specimen, see Frankfort, *Iraq Excavation of the Oriental Institute*, 1932-33, pp. 38, 39, fig. 35. Also Woolley, *Royal Cemetery*, p. 81.

[3] Hall, *Antiquaries Journal*, vol. VIII, No. 4, p. 447. See also Schiaparelli, *La tomba intatta dell' architetto Cha*, fig. 52.

[4] Griffith, *Journ. Eg. Arch.*, vol. XII, pp. 22, 23.

4·6 ins. wide by 1 in. thick, and it is estimated that its length when perfect was 5·9 ins. It has a flat, V-shaped projection which adds another 0·76 in. to its thickness, making an over-all thickness of 1·76 ins. The V-shaped ridge, whether on the top or underneath of the plaque, was probably intended to slide in a corresponding groove, though it is neither tapered nor provided with a stop.[1] It grades down from a width of 2·5 ins. on the outside to 2 ins. where it joins the plaque. There are two parallel lines, 0·65 in. apart, faintly incised across the top of this projection (Pl. CVII, 32), and half-way between the two is a very shallow mark or pitting. It is difficult to see that these marks could have had anything to do with the use or making of the cover. The finish is very good and reasonably accurate. Unfortunately, owing to the softness of the material and the dampness of the soil, it is very badly corroded. Locus: Bl. 9, ho. VI, rm. 32. Level: – 7·2 ft.

No. 7 in Pl. CV (DK 5615). Pinkish pottery; cream slip. 2·99 ins. long by 1·45 ins. wide by 0·93 in. high. A cup-like projection in the centre of the upper surface of this object is 0·35 in. in diameter inside by 0·55 in. deep, and its rim is perforated horizontally by a small hole on opposite sides. The longitudinal grooves on either side of this projection on the upper surface of the plaque shallow out towards one end and are 0·23 in. deep at the other. These grooves average 0·15 in. wide with sloping sides and were apparently made with a rounded stick before baking. A small, oblique hole, 0·1 in. diameter and depth, at one end of the plaque seems to have been left unfinished; it may have been intended to take a cord to draw the object along. The four edges are flat and smooth, and across one edge of the base which is fairly plane eight parallel lines had been roughly scratched with a pointed instrument after baking.

The roughness of its workmanship suggests that this object was made by a child, but for what purpose we can only conjecture. The cup-like projection on the top may have been intended to take a wooden rod, and, but for its squareness, this object might perhaps have been intended to represent a boat to be pulled along by a string. This, however, hardly seems likely in view of the average child's passion for realism. Locus: Fore Lane, bet. Bls. 1 (III) and 7. Level: – 9·9 ft.

No. 23 in Pl. CV (DK 8499) is a curious flat object, made of pottery and possibly used in weaving, which should not be confused with the pottery bullae illustrated elsewhere.[2] Carefully made and coated with a cream slip, it is 2·85 ins. long by 1·62 ins. wide at its broadest end and 0·38 in. thick. Small holes pricked in two rows at the wider end of either face average 0·1 in. in diameter. Those of the upper row seen in the illustration completely penetrate the object, but those of the lower row are blind and only 0·22 in. deep. On the reverse, it is the holes of the upper row which are blind. Locus: Bl. 9, ho. I, rm. 34. Level: – 5·2 ft.

No. 17 in Pl. CVI (DK 10577). Portion of a hollow cylinder of white alabaster. 1·68 ins. high by 1·4 ins. in diameter before breakage: 0·24 in. thick. The upper and lower edges of this fragment are perfect and it is clearly not part of a stone vessel. It was very carefully fluted outside, being first ringed horizontally with a saw and the parts between the cuts then carefully rounded

[1] We already know of the use of V-shaped slots to accommodate a cover in several hollow seals that were evidently intended to contain amulets (see p. 344 and pl. XC, 9–11).

[2] *Cf.* a similar object illustrated in *Mohenjo-daro and the Indus Civilization*, pl. CXXXIII, 1.

off. Each fluting is 0·32 in. wide and projects 0·11 in. Locus: Central Street, bet. Bls. 8A (33) and 18. Level: – 5·5 ft.

No. 39 in Pl. CVI (DK 11447). 2·83 ins. long by 1·85 ins. in diameter. Roughly made from a piece of brick, with a shallow groove, 0·48 in. wide by 0·08 in. deep, cut round the middle. This groove shows a slight amount of wear as if something had occasionally slipped on it. Possibly a toggle. Locus: Bl. 13, ho. III, rm. 19. Level: – 3·8 ft.

No. 40 in Pl. CVI (DK 10445). Light red pottery: cream slip. 3·11 ins. long by 2·33 ins. in diameter at base. Half of its length is round and half very roughly squared, as if this object had been made expressly to fit into something. A roughly bored hole, some 0·4 in. in diameter, perforates it from top to bottom and was evidently made before the object was baked. Both the top and base are flat, and the latter shows a certain amount of wear. I can offer no suggestion as to the use of this object. Locus: West Street, bet. Bls. 17 (IV) and 19. Level: – 0·7 ft.

No. 41 in Pl. CVI (DK 11279). Light red pottery. 3·66 ins. high by 2·57 ins. in diameter at base. Roughly hacked out from a piece of brick. The top is thinned down and roughly rounded; and there is a very slight suggestion of a groove across the middle of the base and up the sides to where it is recessed. The recess probably served to take a cord. This may be either a loom or a net-weight, though it is not very heavy. Locus: Bl. 25, ho. I, rm. 13. Level: – 7·9 ft.

Nos. 9 and 10 in Pl. CVIII (DK 9057). This curious object, of which both obverse and reverse are shown, is quite new to us. It is made of pottery; and is 3·7 ins. long, including the thick handle, by 2·73 ins. wide and 0·62 in. thick. One side (No. 10) is flat and the other slightly rounded; and on both an apparently meaningless pattern, which may or may not have been filled in with colour, is incised. The two incised lines on the handle in No. 10 were filled in with a pigment, red in one, black in the other. Possibly this object was used for patting, as, for instance, to finish a piece of pottery[1] or in butter-making. Though both faces are irregular in places, this object was carefully made and smoothed off. Locus: Bl. 1, western wing (IV), rm. 28. Level: – 17·4 ft.

No. 19 in Pl. CVIII (DK 8955) (see also Pl. CX, 7). Faience; with slight traces of green. 1·58 ins. long by 0·78 in. in diameter at head. Pierced horizontally by two holes, each 0·11 in. in diameter. The lower portion of this object is missing and its use unknown. Locus: Bl. 1A (90). Level: – 20·1 ft.

No. 33 in Pl. CVIII (DK 5335). Yellowish-brown limestone. 7·25 ins. long by 5·12 ins. broad and now 3·7 ins. high. It has plane sides, a curved base, and a deep channel, 2·45 ins. wide, in its upper portion, parts of whose sides are broken away, so that it averages 0·78 in. in depth. The two ends of this rocker (?) are fairly plane and roughly dressed. It seems not unlikely that a beam of some kind was set in the channel so that the rocker served as the fulcrum of a lever, though as yet nothing has been found heavy enough to call for a lever of such a size. Locus: Bl. 1, ho. VII, corridor (3). Level: – 14·5 ft.

No. 3 in Pl. CIX (DK 8630) (see also Pl. CX, 14). An ivory head which was obviously once fitted into something, which may have been a wooden box. It

[1] We have, however, yet to find pottery that was finished with a paddle such as is in use in Sindh to-day. See *Journ. Roy. Anthrop. Inst.*, vol. LX, pp. 127-35.

is 1·55 ins. long, and through its head, which is 0·5 in. in diameter, there runs a hole, 0·13 in. in diameter. Much polished by use, and it is possible that a string was wound around two of these objects, one in the lid and one just below it in the side of a box, to keep it tightly closed.[1] Locus: Bl. 7, ho. IX, rm. 34. Level: – 19·6 ft.

No. 25 in Pl. CX (DK 8726) (see also Pl. CXI, 79). Pierced rectangular plaque. Appears to be pottery; but was perhaps cut from a piece of brick. 2·15 ins. long by 1·4 ins. wide by 0·93 in. thick. Well made. In its centre a rectangular hole, 0·5×0·29 in., pierces it vertically. Four small, round holes also, each 0·1 in. in diameter, pierce the plaque longitudinally, two from either end, to open into the large central hole. One face of this plaque, as is seen in Pl. CXI, 79, is slightly sunk round the hole and shows signs of having been rubbed. Locus: Bl. 7, ho. V, rm. 68. Level: – 17·3 ft.

Ivory Roundels (*Pls. CIX, 4, 14, 15; CX, 27, 32, 40*).

No. 4 (DK 8322) (see also Pl. CX, 40) 0·52 in. in diameter by 0·5 in. high. The side of this roundel is cross-hatched with incised lines that were once filled in with black. Locus: Bl. 9, ho. VIII, rm. 18. Level: – 12·9 ft.

No. 14 (DK 8351) (see also Pl. CX, 32). 0·7 and 0·6 in. in diameter at ends by 0·51 in. high. Somewhat warped and not now truly circular. Ornamented in the same way as No. 4. Locus: First Street (22). Level: – 16 ft.

No. 15 (DK 6488) (see also Pl. CX, 27). 0·82 in. in diameter by 0·65 in. high. Similarly ornamented to the others. It differs from them, however, in having once had an attachment on the side, whose shape we do not know. Locus: Bl. 7, ho. VIII, rm. 19. Level: – 13·2 ft.

These three objects cannot have been gamesmen, for neither their flat tops nor bases show any polish through use, whereas their sides are well smoothed by constant handling. The possibility of their having been used as seals is also invalidated by the regularity of the decoration upon them which would have allowed of easy forging. Nor could No. 15 in Pl. CIX have been rolled more than a limited distance. These objects are entirely new to us, and so far have appeared solely in the Intermediate II and I strata.

Pottery Object (*Pl. CIX, 30*).

No. 30 in Pl. CIX (DK 5722). Pottery; no slip. Somewhat roughly made, solid and with an upward projecting spout, 1·8 ins. high. Though this object resembles in shape the upper part of the kohl pot illustrated in Pl. LX, 51, nothing appears to have been broken from its lower portion, and the vertical hole in the spout, which is 0·14 in. in diameter, is only 0·6 in. deep. There is another vertical hole, moreover, in the apparent base, some 0·15 in. in diameter and 1 in. deep. Locus: Bl. 1, central corridor (15). Level: —13·9 ft.

Wavy Rings (*Pl. CIX, 39, 40*).

No use has yet been found for these wavy rings, of which small examples are fairly common at Mohenjo-daro, whereas large stone specimens have been found at Harappā,[2] unless, as I have before suggested, the smaller ones were strung on

[1] *Cf.* Pls. CVI, 31; CVIII, 11.

[2] *Mohenjo-daro and the Indus Civilization*, Pl. XIV, 6, 8.

a metal rod with different colours and materials alternated to form an ornamental sceptre or staff. At Mohenjo-daro we have found cylindrical disc beads of shell strung on fine copper tubes (Pls., CXI, 12; CXXXVI, 24; CXXXVIII, 11); alternating with black stone beads of similar shape (see the chapter on Personal Ornaments); and it is quite possible that rings of shell and alabaster may have been treated in exactly the same manner to produce a still more imposing effect.

Plate CIX.—No. 39 (DK 6435). Alabaster. 1·77 ins. in diameter by 0·8 in. thick. Hole through centre, 0·44 in. in diameter. The top and bottom of this ring had been quartered by two deep cuts, and the edges of the projections so formed were neatly rounded off. Slightly weathered. Locus: Bl. 10, ho. III, rm. 67. Level: – 16·8 ft.

No. 40 (DK 9633). Shell. 1·38 ins. in diameter by 0·5 in. high. The irregular hole through the centre appears to be a natural one, and it was probably intended to bore it properly at a later stage. The base of this ring was left flat, though the top had been quartered as in No. 39 by means of a saw, which was followed by chiselling. The cuts are very shallow and the ring is evidently unfinished. Locus: Fore Lane, bet. Bls. 1 and 10 (I). Level: – 28·3 ft.

Chapter XIII.

SILVER, COPPER, BRONZE AND LEAD UTENSILS AND OTHER OBJECTS.

This chapter deals with the metal utensils, weapons, and tools found at Mohenjo-daro during the four seasons 1927-31. As will be seen from the illustrations in Pls. LXXI, 33 ; CXIII to CXXIV ; CXXV, and CXXVI to CXXXIII, a very varied assortment of objects was unearthed. To avoid a too detailed description of all these objects, their measurements and other particulars are tabulated at the end of the chapter. Unfortunately, it has proved impossible as yet to distinguish between those from the different levels by their style, shape or workmanship, I have, therefore, provisionally grouped them under two heads :—(1) The " Early Group ", *i.e.*, all those found below the level —12 ft. (2) The " Late Group ", *i.e.*, all those found above the level —12 ft. When the excavation of the Indus Valley sites is resumed and further finds are made, these subdivisions can be expanded. An immense amount of further work is called for on this subject.

It would have been desirable, also, to have obtained an analysis of every metal object found, but pressure of work in a limited time has forbidden this. Those objects marked " bronze " in the table have been definitely found to be so ; that is, they contain a larger proportion of tin than could be due to the presence of a natural impurity. All the more important metal objects have, of course, been examined, and their analyses by Khan Bahadur Muhd. Sana Ullah and Dr. M. Hamid will be found either at the end of this Chapter or in Chapter XVI.

Particular attention should be paid to the analyses by Dr. Desch of Sheffield University of a number of fragments of copper and bronze that we found in the very deep excavation in Block 7 of the DK Area (Pl. XVI). Unfortunately, no complete tools and weapons were found, but the fragments analysed prove beyond doubt that bronze was known to and used by the people of the earlier occupations as well as later. For instance, bronze containing no less than 22·2 per cent. of tin was found at the level 30·4 ft. below datum and another piece with 8·3 per cent. of tin at 33·4 ft. below datum. These lower levels I would provisionally date to c. 3,000 B. C.

An interesting feature of some of the metal tools and implements is that on their incrusted surfaces a few threads, or the distinct impression, of some woven fabric is seen, sufficient in some cases to permit of the easy identification of the material. For instance, the thread wound round a copper blade (DK 8376)[1] from the level —16·3 ft. has been pronounced on expert examination to be cotton, and the fabric adhering to the razor-blade (DK 11985), illustrated in Pls. CXVIII, 7 ; CXXV, 41, has also been proved to be cotton.

It is also more than probable that the fine cord round the middle of a much corroded copper rod (DK 5844) from a level of 14·6 ft. below datum is cotton.

All these specimens were microscopically examined by Dr. A. N. Gulati of the Cotton Technological Laboratory, Matunga, Bombay, whose reports will be found in Chapter XVI.[2]

[1] Locus : Bet. Bls. 9 and 9A (V).

[2] See also the report by Turner and Gulati in *Mohenjo-daro and the Indus Civilization*, pp. 585-6, on some fabric adhering to a silver vessel. Also, *A Note on the Early History of Cotton*, Bulletin No. 17, Indian Central Cotton Committee, Technological Laboratory.

These remains of fabric or cord adhering to articles of copper and bronze owe their preservation to the metallic salts formed in the process of corrosion.[1] [2] It seems that some of these articles were habitually wrapped up, more probably with the idea of preserving their edges from accidental damage than for any other reason; but it may, also, have been noticed that direct contact with the soil was apt to turn copper green and, therefore, any metal articles that were buried for safety were wrapped up in cotton cloth.

Many of the tools and weapons, knives, chisels, etc., were fixed in handles which are described later, and of these tools it will be noticed in the appended table that the tang was sometimes thicker than the blade.

Perhaps the most interesting tool that has been found in recent excavations is the saw illustrated in Pls. CXVI, 6; CXVIII, 1, whose teeth and the adjoining part of the blade are set alternately from side to side, an arrangement previously not known earlier than Roman times. The very substantial sword (Pl. CXIX, 9) is surprising at so early a date; it shows that at all events some of the people of Mohenjo-daro were well armed.

As would be expected from the fact that wood was probably even more plentiful than it now is in the districts adjacent to the Indus, tools used in woodworking are well represented in our collection. Of comparatively few of the implements found, such as the swords, can it be said that they could only be used in warfare. Spears and arrows were doubtless used as much in hunting as for fighting, and we have yet to find that the people of Mohenjo-daro had any enemies of more consequence than occasional raiding parties from the mountains of Balūchistān. Their chief enemy was probably the river, against which the mattock and the spade would be the most effective weapons.

It does not seem to have been a general habit, as it was in Early Sumer, for people to carry hones about on their persons, though suitable stones for this purpose must have been as difficult to come by in Sumer as in the Indus Valley. Possibly the smith was resorted to more frequently than in Sumer, for even weapons with a high percentage of tin would readily have lost their edge. Hard woods may, however, have been used; they would amply suffice to keep a thin blade sharp and perhaps be even better for this purpose than stone, which in the hands of an unskilled man can easily ruin a blade.

The two cones of coiled, copper wire illustrated in Pl. CXVIII, 11, that were found with other objects in Group A, must, I think, have been intended for personal adornment. They are, therefore, included in Chapter XIV, on Personal Ornaments, in which other articles of metal, such as bracelets, buttons, spacers and the like, are described in detail.

It was not the custom at Mohenjo-daro to decorate tools and weapons in any way; nor do we find on them any identification marks, save for a group that was unearthed at the very low level 24·4 ft. below datum (Pl. CXXVI), and a badly mutilated instrument (DK 6636) from the level −17 ft., whose original shape we do not know, but which bears a lightly marked chevron pattern.[3]

[1] Copper salts are used at the present day for the preservation of certain kinds of canvas.

[2] Fabrics have also survived for the same reason on the copper and bronze tools of Sumer and Elam.

[3] This object may possibly be a pin-head, and is too badly corroded to be illustrated.

Metal Hoards.

The interesting and valuable collection of bronze and copper articles illustrated in Pls. CXIII to CXXIV were all found in the upper levels of Mohenjo-daro, *i.e.*, they belong to the Late Group. And many of them are entirely new types, unrepresented in the previous book on Mohenjo-daro.

From three hoards of metal objects that were found in the season 1930-31 in comparatively small houses close to one another in Blocks 14 and 15 of the northern portion of the DK Area we obtained a wide range of copper and bronze utensils.

Group A (DK 10781, *a–z, aa–ah*) was found in room 19 of House II, Block 14 (Pl. X, a, extreme right hand corner), just below an opening into room 18. It lay 4·8 ft. below datum and is, therefore, of Late I date. It comprised no less than 40 objects, 32 of which are illustrated in Pls. CXIII—CXV and the remainder as follows :—Bronze figure of goat in Pl. LXXIV, 18, 19 ; two spiral coils of copper wire in Pl. CXVIII, 11 ; and the best of five copper bangles all of the same type in Pl. CXV, 4. When found, all these objects were corroded together in a mass (Pl. X, e, f), the smaller objects inside some of the jars and vases. Yet despite the fact that only some 4 ft. of earth covered them, this hoard of objects was on the whole in a very good state of preservation, and thanks to the great care bestowed on them by Dr. Hamid, they have been separated, and cleaned and repaired where necessary.

The small vase, Pl. CXIV, 12, was inside the large one, Pl. CXIV, 14 ; and the large open jar, Pl. CXV, 5, contained no less than thirteen small objects, the copper fish-hook, Pl. CXIV, 6, two wire coils, Pl. CXVIII, 11 ; a small chisel and shell ball, Pl. CXIV, 7, 9 ; six bangles, and the small copper vases, Pl. CXV, 7, 8. The very graceful vessel, CXIV, 8, contained the bronze animal seen in Pl. LXXIV, 18, 19, the vases, Pl. CXV, 2, 3, 6, and the little copper dish, Pl. CXIII, 9.

Group B (DK 11232, *a–h*) lay just below pavement level in room 28 of House VI, Block 15 (Pl. X, g). As its level was 5·7 ft. below datum this hoard belongs to the Late Ib Period. Though a smaller group, it is none the less interesting. The large copper vessel, Pl. CXV, 16, over which when found the copper dish, Pl. CXV, 10, was inverted, contained the rest of the hoard, including two stone weights, Pl. CXV, 13, 15, both of which are in a perfect state of preservation and are described in Chapter XII, on the Household Objects, Tools and Implements.

Group C (DK 11337, *a–z, aa–ac*) was found in the same room as Group B, at a little distance from it and at a slightly lower level, *i.e.*, 7·1 ft. below datum. Most of the objects in this group are illustrated in Pls. CXVI ; CXVII, 1–4. A number of beads, some of which are of new types, some fragments of broken silver, weights, a bracelet, an awl, etc., are illustrated in Pl. CXXXV, 1–22. These latter objects were all found in the copper canister, Pls. CXVI, 3 ; CXVIII, 18, which in turn was contained in the large bronze vessel, Pl. CXVI, 5, which also held the small vase, Pl. CXVI, 1, and the three blade-axes seen in Pl. CXII, 1–3. In Pl. X, h, this interesting group is seen as it appeared before its removal from the soil.

It is difficult to say why these groups of copper and bronze should all have been found in such a comparatively small area. As they were buried below the earthen floors of the houses, it seems that their owners intended to retrieve them

later, but were unable to do so for some reason. The cooking vessels and tools of a rather poor household would hardly have been buried unless there were some immediate danger of their being looted by an invader; and even then one would have supposed that a search would have been made for valuables buried beneath the floors. I am inclined to think that the people to whom these articles belonged had sufficient warning of some impending trouble to bury their more valuable goods and chattels, but that none of them escaped with their lives. Possibly a raiding party from the mountains to the west (the Khīthar hills) attacked Mohenjo-daro and it was left deserted for some appreciable time, then after another very brief occupation (Late Ia) the city was finally deserted. If the trouble had lasted not more than a year or two, there would, I imagine, have been plenty of people only too anxious to search for buried possessions beneath the floors of the houses whose owners failed to return. It seems not unlikely that the skeletons lying on the staircase in well-room 42 of Block 8A (Pl. XLIII, c) which is not far away from these houses, and also the nine in a pit in Block 10A (Pl. XXXII, a and b) were victims of the same raid.[1] This would also explain the group of fourteen skeletons found by Mr. Hargreaves in a house of the same date (?) in the HR Area.[2] The flooding of the city is not an adequate explanation in this case, for there would have been ample opportunity during the winter for the belongings left behind to be retrieved. Even if the actual owners had perished, their relatives would have taken over their belongings, or at least have looked for anything that might have been left behind. The total area to be searched would not have been very extensive and judicious probing would soon have detected anything that was buried.[3]

Another but less likely possibility is that the inhabitants of the city took flight at the onset of an epidemic of disease, such as plague or cholera. In India to-day plague-stricken villages are abandoned, at all events temporarily. If such had been the case, the groups of skeletons must be regarded as those of victims who died after the departure of the rest of the population.

Group D.—A fourth hoard of metal objects was unearthed in 1929 at the very low level 24·4 ft. below datum in room 15 of Block 12A close to the eastern jamb of the blocked door (Pl. XVI). The objects comprised in this group are illustrated in Pls. CXXVI, 1–5; CXXVII, 1, 2; CXXXI, 28–32, 34–9; CXXXII, 33–5. They are described in detail later in this chapter. Some of these copper and bronze tools have pictographs incised upon them, and with the exception of the knife in Pl. CXXXIII, 1, they are the first so marked that we have found at Mohenjo-daro, though incised weapons have been known from Harappā for some time.

The very few metal objects comprised in the Early Group, *i.e.*, those found below the level −12 ft., are illustrated in Pls. CXXVIII-CXXXII. There are two reasons to account for the smallness of their number:—Firstly, the constant raiding of earlier strata in the search for brick which no doubt resulted in the use of various articles of copper and bronze of earlier date by the people of the Late Period; and secondly, it should be noted, considerably larger areas of the

[1] For descriptions of these skeletons, see pp. 94, 116-8.

[2] Marshall, *Mohenjo-daro and the Indus Civilization*, pp. 184-6, pl. XLVI, a, b. Also the six skeletons found by Mr. Vats in the VS Area, pp. 222, 223, Pl. LIX, c.

[3] Anyone who has seen a search of this kind in an Eastern house would realize how quickly and efficiently it can be done.

Late Period have been explored than of the Intermediate and Early Periods. I have no doubt whatever that in actual fact metal was as much used in the lower levels as in the later occupations. Indeed, if it had not been for the fortunate discovery of the three hoards described above, the metal objects of the Late Period would not have been half so well represented.

Metal Utensils.

Owing to the resemblance in shape of many of these copper and bronze vessels to pottery forms, they have been typed under the same heads as the pottery, which obviates a certain amount of detailed description. The tools and weapons, also are not described in detail, save where there are marked peculiarities or their forms are out of the ordinary. The plates together with the tables at the end of this chapter will provide the additional information not given in the text.

Type D (*Pls. CXV, 17; CXVI, 1; CXVIII, 12*).—Neither in the two recently found metal jars of this type nor in those from the earlier excavations [1] was the metal-worker able to reproduce exactly the somewhat complicated base of the pottery vessels of this shape (Pl. LV, 23). He came, however, very near to success with the help of the stake, and he could easily have achieved it by casting the jars. In this case it seems certain that the metal jars were copies of the pottery ones, and not the other way about, though the beaded base of the metal vessels could have been a spontaneous achievement by lapping on a separate piece of metal for the base, a procedure which would have greatly simplified its manufacture. In fact, both vessels, though made in one from sheet copper, convey the impression that the base was made separately. The jar illustrated in Pls. CXV, 17; CXVIII, 12, differs slightly from the other (Pl. CXVI, 1), in having a more pronouncedly flanged rim, doubtless intended to strengthen it, though the metal was not actually bent over. This vessel also shows very distinctly the marks of the hammer used to shape it. In the other jar the hammer marks are not so obvious. Both these vessels are excellent examples of the metal-worker's craft and are in a good state of preservation, though one had been slightly bent by use—as it was found inside the larger jar (Pl. CXV, 16), the damage cannot be attributed to earth pressure. No metal vessels of this type have as yet been found in the earlier occupations.

Type DA (*Pl. CXV, 1*).—It will be seen that the bronze vessel figured in Pl. CXV, 1, is practically identical in form with the pottery type in Pls. LVI, 33; LIX, 15, the only difference being that both the latter vessels have a pronounced flat base. The slight difference between *Types D* and *DA* lies solely in the base, yet this distinction, slight as it is, was observed by potter and metal-worker alike. This particular vessel was certainly raised from sheet bronze and with considerable care, though it has, unfortunately, been somewhat crushed by earth pressure.

Type E (*Pls. CXIV, 14; CXV, 8, 9; CXXVIII, 17; CXXXII, 1.*)—No. 14 in Pl. CXIV and Nos. 8 and 9 in Pl. CXV were all in the same hoard, the two first of bronze and the third copper. I have associated them with the pottery *Type E* solely on the ground that they have a distinct ledge at the junction of body and neck, though in other respects they are not the same; nor can I find their shape amongst the pottery types. I have no doubt, however, that pottery

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXLI, 1.

vessels of these exact shapes were made and that they will eventually be found at Mohenjo-daro or at sister sites. All these jars were certainly beaten metal, the last more roughly made than the other. In each the base is one with the rest of the jar, except perhaps in No. 14 in Pl. CXIV, though there is no indication of lapping or soldering. Possibly a plate was fastened to the foot of this jar by running metal round it, a process observed in a cover and handle found in a former season.[1] In this last vessel (Pl. CXIV, 14), which is rather battered and worn by use as well as by earth pressure, No. 12 in the same plate was found.

No. 17 in Pl. CXXVIII (see also Pl. CXXXII, 1) is a badly corroded copper vessel, 3·3 ins. high, from the lower levels with a very distinct ledge round the base of its neck. This vase is not unlike the pottery jar illustrated in Pl. LV, 25, and is practically the same shape as No. 8 in Pl. CXV. No. 20 in Pl. CXXXII is a drawing of it from a slightly different angle, as it is slightly crushed.

Type F (Pls. CXV, 16; CXVI, 5, 7; CXVIII, 22–4 (a)).—By far the most popular form of metal vessel was the squat, round-based, wide-shouldered jar seen in Pls. CXV, 16; CXVI, 5, 7, and as yet only found in the Late Period though the same form in pottery was used in the Intermediate Period. I am inclined to think that these jars were sometimes made in two parts; this is certainly suggested by the very pronounced carination of No. 7 in Pl. CXVI, though corrosion has obscured the join. Within this type group there is a considerable range of forms from the very squat ones to the jar that is nearly as high as it is wide (Pl. CXVI, 5). The base is always well rounded; only in No. 5 in Pl. CXVI is there a tendency towards a point. For vessels of very similar shape in pottery, Pls. LV, 26–8; CXLI, 60, afford good examples, though here the join is higher up and not at the widest part, as is always the case in the metal vessels. The reason for this is, I think, that it is difficult to narrow a metal vessel in the process of beating it out, whereas clay presents no difficulty in this respect. It has been suggested that this type of vessel was first cast and then trimmed up on a lathe, as are certain metal jars in India to-day. I am confident, however, that some, if not all, were raised from sheet metal, whether copper or bronze. Where corrosion has not gone too far, distinct hammer-marks can be seen on some of the vessels; and slight irregularities in shape are also strongly suggestive of hand-work. Moreover, whatever process was employed in their manufacture, these jars were never spun afterwards on a lathe. Curiously enough, though the rims project considerably and were in consequence liable to damage, it does not seem to have occurred to the metal-smith to thicken them by lapping the edge over.

I know of no jars of a comparable shape outside India, save an alabaster vessel in the Baghdad Museum whose form is not unlike except for being rather more elongated in the body.[2]

Metal jars of this type are frequently covered when found by an inverted shallow pan, which in some cases is so firmly attached by corrosion to the lower vessel that it is well-nigh impossible to remove it (Pl. CXVIII, 24). On more than one occasion, we have had to remove the contents of a metal jar by breaking away a portion of the base, as this part is easier to repair than the rim. It is unlikely that the shallow pans were made for this particular purpose; they are

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXL, 5, p. 489.

[2] *Antiquity*, Dec., 1931, p. 471.

much too large and would have slid about. They doubtless had their own definite use, and only served as jar-covers on occasion.

In all probability vessels of this type were used as cooking-pots; the wide mouth and more or less squat shape rendered them eminently suitable for this purpose. Indeed, very similar metal vessels are used in preparing the evening meal at the present day in Sindh and other parts of India.

No. 22 in Pl. CXVIII was in such an excellent state of preservation that it is quite clear that it was made of beaten copper, and not cast. The marks of the stake on which it was shaped are especially apparent at the lower edge of the beading. The only bronze vessel of this type is the one illustrated in Pls. CXVI, 5; CXVIII, 24 (*a*). That it is of bronze is certain, for Dr. Hamid found the metal to contain an appreciable quantity of tin. Unfortunately, this jar was so badly corroded that it remains uncertain whether it was beaten or cast.

Type G (*Pls. CXXVIII, 19; CXXXII, 12*).—No. 19 in Pl. CXXVIII (see also Pl. CXXXII, 12) is a small copper vase of the Early Group, only 1·3 ins. high, and it appears to have been cast, though owing to corrosion we cannot be certain on this point. The nearest comparable shape is a small copper jar found prior to 1927.[1] A pottery vessel of similar shape is seen in Pl. LV, 38

Type M (*Pls. CXIV, 8; CXV, 2; CXVIII, 19*).—We have found only two further examples of this shape[2] in the upper levels, in the same hoard, and they are not unlike the pottery type illustrated in Pl. LVI, 15. No. 8 in Pl. CXIV (also illustrated in Pl. CXVIII, 19) is copper and has, I think, a lapped-on base like the earlier found example, though corrosion precludes certainty on this point. The base of the second jar (Pl. CXV, 2), which is bronze and has the appearance of being cast, quite definitely was made by inserting a circular piece of metal in the foot of the vessel and carefully turning the edge of the latter under it all round, whereas it was more usual to turn the edge of the plate up round the foot of the jar. As this vessel was cast, there was actually no need to make the base separately, unless, of course, there was a flaw in it and it had to be replaced. This jar had been slightly damaged in use.

Type MA: (*Pls. CXV, 6; CXVIII, 17*).—This copper vessel from the upper levels is comparable in shape with the pottery vessel in Pl. LVI 18[3] It is the only example found of its kind and is exceedingly well made with a very smooth surface, though it is bent slightly out of shape. The small base which is only accidentally concave, is one with the rest of the jar which was raised from sheet metal and not cast.

Type R (*Pls. CXIV, 12; CXVIII 16*).—The shape next in favour to *Type F* is seen in Pls. CXIV, 12; CXVIII, 16. Though we have only found a single example in a Late level of the more recent excavations, several were unearthed prior to 1927, in both copper and silver.[4] The close resemblance of this shape to *Type R* of the pottery is apparent from Pl. LVI, 25–7. Our recent example is of beaten copper with a concave base lapped on, as in two vessels of another shape found before 1927.[5] It is possible that vessels of this type, whether of

1 *Mohenjo-daro and the Indus Civilization*, pl. CXLI, 1.

2 *Op. cit.*, pl. CXLI, 6.

3 Also compare *Mohenjo-daro and the Indus Civilization*, pl. LXXX, 70.

4 *Op. cit.*, pl. CXL, figs. 1-3.

5 *Op. cit.*, pl. CXLI, 2, 6; pp. 490-1.

metal or pottery, were used for ceremonial purposes, since two examples have been found in silver.[1] Even when made in pottery, the carefulness of the finish was usually remarkable and the vase was sometimes painted in polychrome. A vessel of this type occupies an important position on a pottery amulet seen in Pl. XC, 23, 24(b).

Type X (Pls. CV, 30; CXXIV, 28).—No. 30 in Pl. CV (see also Pl. CXXIV, 28), resembles the pottery jar-covers of *Type X* (Pl. LVII, 2). It was beaten out of thin, sheet copper, and is 2·65 ins. in diameter by 1·42 ins. high. A thin, copper band was fitted inside to make the cover fit snugly on to the vessel to which it belonged. Owing to corrosion, it is uncertain, how this band was fastened on; it could hardly, I think, have been soldered, and yet there is no other way in which it could have been fixed, unless, of course, it is one with the rest of the cover. If the latter were so, the making of this cover was a very skilful achievement.

Miscellaneous Shapes.

The other metal vessels found in the upper levels have no known pottery equivalents and they must for the present remain unclassified.

Plate CXV.—No. 3 is a simple form only 2·6 ins. high, made of beaten copper and not cast.

No. 5 (see also Pl. CXVIII, 21) is also beaten copper and somewhat roughly made. When found it contained quite a number of objects including six copper bangles (Pl. CXV, 4), the chisel and shell ball, Pl. CXIV, 7, 9, two spiral coils of copper wire and a fish-hook (Pl. CXVII, 11), and the two small vessels, Pl. CXV, 7, 8.

No. 7 is a well made vase of thin, beaten copper and only 1·4 ins. high.

Plate CXVI.—No. 3 (see also Pl. CXVIII, 18) is a canister of beaten copper, 5·05 ins. high, whose cover is so closely fitted on that it has been found impossible to remove it.[2] It seems that the original owner of this article also experienced some difficulty owing to the tight fit of the cover, for its now concave top shows signs of considerable pressure having been applied to it, and it looks as if sometimes it had even been hammered into place. It is possible, of course, that the canister and cover were not made for one another, and that they were in reality separate vessels, as is suggested by the splayed base and top. The diameter of the lower part is 4·9 ins. and of the top 4·55 ins. This canister was found inside the large vessel, Pl. CXVI, 5 and contained the various objects illustrated in Pl. CXXXV, 1–22, which will be described in the next chapter.

Pans *(Pls. CXIII, 8; CXIV, 11, 13; CXV, 10; CXVII, 4; CXVIII, 20; CXXXII, 27).*

A number of these simple pans have been found in the upper levels at Mohenjo-daro and they show very little variety in shape. No. 13 in Pl. CXIV, however, differs from the rest in that its sides are concave and its base slightly convex, which would have made it spin on a hard, flat surface. All these dishes are copper and most of them show hammer-marks inside. As in modern practice the edge was turned up with the aid of a stake, leaving an irregular rim which

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXLVIII, B.

[2] Its contents had to be removed by cutting away the top of the cover.

was subsequently trimmed round afterwards. I have looked for traces of the tool used to do this trimming, which now-a-days is done with a pair of shears, but whatever, the tool, its marks had been removed, perhaps with a hone.

It has already been pointed out that these pans were on occasion used as covers for the larger metal jars. The largest found is No. 8 in Pl. CXIII (see also Pl. CXVIII, 20), which measures 11·75 ins. in diameter at the rim, 11·25 ins. at the base, and is 1·67 ins. high. The smallest is illustrated in Pl. CXXXII, 27, and measures 3·28 ins. in diameter. Its simple, turned up sides were originally 0·5 in. high, but it is now very badly bent and corroded. It was found at the level 16 ft. below datum, the lowest level at which we have found this type of pan.

Dishes (*Pls. CXIII, 9 ; CXIV, 10 ; CXXII, 6 ; CXXVIII, 22 ; CXXXII, 3*).

The dishes shown in Pls. CXIII, 9 ; CXIV, 10, have proved on analysis to be cast copper and they are, in consequence, much thicker than the other copper utensils. Their thick rims are flat and level to accommodate covers. The two specimens found in the more recent excavations in actual fact had no covers, but in the previous work lids were found with this type of dish.[1] I have before suggested that these shallow dishes were perhaps intended to contain a fat or a cosmetic which was volatile.

No. 9 in Pl. CXIII, which measures 2·78 ins. in diameter by 0·4 in. high, with its flat rim 0·2 in. wide, is the smallest dish of its type that has been found as yet. No. 10 in Pl. CXIV, which is not particularly well made and may never have possessed a cover, seems to have been converted into a scale-pan, for there are three small holes pierced just inside the thick rim at equal distances apart. As there was no second scale-pan with it despite its being found in an untouched hoard, we may perhaps conclude that this pan was not balanced by another metal pan but by a wooden one.

No. 28 in Pl. CXXI (see also Pl. CXXII, 6) is a simple, copper dish of a type not quite so shallow as those described above.

The dish illustrated in Pls. CXXVIII, 22 (see also Pl. CXXXII, 3) was found at the level −15·9 ft.

Frying-pans (*Pls. CXXI, 42 ; CXXII, 10 ; CXXVIII, 15 ; CXXXII, 4, 11*).

No. 42 in Pl. CXXI (see also Pl. CXXII, 10) is, I think, a frying-pan with a simple, tubular handle. It is made of copper, and was the first metal vessel with a handle to be found at Mohenjo-daro. It measures 5·7 ins. long with the handle which is a broad strip of metal bent round to form a hollow tube. Owing to its taper this tube would not have accommodated a wooden handle, though it might have been inserted into one. The sides of the pan are 0·45 in. high. Despite the corroded condition of this utensil, the hammer-marks are still distinctly visible.

No. 15 in Pl. CXXVIII (see also Pl. CXXXII, 11) is another copper frying-pan. Including its handle which is one piece with the pan, it is 8·08 ins. long ; the flat handle averages 0·76 in. wide by 0·12 in. thick. It was badly corroded when found and somewhat bent owing perhaps to prolonged use. Somewhat similar utensils have been unearthed at Kish,[2] but they may not have served the same purpose.

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXLII, 1–3, 8.

[2] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. I, pls. XLII, 4 ; LVII, 10–14.

No. 4 in Pl. CXXXII is a badly broken pan of copper which may perhaps have served as a dipper. 3·15 ins. in diameter, it once had straight vertical sides, 0·49 in. high. The remnant of a flat, horizontal handle on one side is 1 in. in width. Traces of woven material were found adhering to the inside of this pan, but unfortunately not enough for a satisfactory microscopical examination.

No. 16 in Pl. CXXVIII is a small copper vase of a type, to which we have found nothing in the upper levels closer in shape than No. 12 in Pl. CXIV. Nor is its shape duplicated in the pottery, the nearest to it being No. 51 in Pl. LXIV. This vase bears evidence of having been beaten into shape; its rim though bent was not strengthened by overlapping.

No. 18 in Pl. CXXVIII (see also Pl. CXXXII, 5) is a bronze kohl-pot, 3·35 ins. high. It was cast, but left unfinished, for three slight projections remain at the widest part, which appear to have been caused by vent-holes or passages through which the metal was run into the mould. The mouth of this vessel is only 0·18 in. in diameter, just large enough to insert a kohl-stick. The high foot has a hollow, flared base. A very similar vase with a foot (Pl. LVI, 4) probably served the same purpose.[1] Alabaster jars of much the same form (Pl. CXLIII, 8, 12, 13) have lost their bases.

No. 21 in Pl. CXXVIII is a small lead dish, roughly beaten out and 3·17 ins. in diameter. It comes from a low level and is the first utensil of this metal that we have found. Though somewhat battered, it is fairly well preserved.

No. 2 in Pl. CXXXII is a thin, copper vessel that was obviously beaten into shape and is now slightly damaged. It stands 3·27 ins. high. There is no parallel to it, so far, either in metal or pottery.

Plate CXXI.—No. 37 in Pl. CXXI is either a spoon or was used for scooping up powders or heavy liquids. Made of thin, sheet copper, it measures 4·1 ins. long. It is very slightly concave with a blunt edge on all but one of the longer sides which is turned up to a height of 0·31 in. In this turned-up side a hole, 0·14 in. in diameter, served to take a string, or by means of it a nail fastened the scoop to a wooden handle. Though not often found, this scoop-like article was already known to us, for an exceptionally good specimen was found in the earlier work.[2] The shape seems to have been copied from a mussel-shell. It may possibly have been used to remove colour from a palette, for which its comparatively sharp edge—now blunted by corrosion—would have been very useful.[3]

Ingots and Castings (*Pls. CXXI, 19, 34; CXXVIII, 5; CXXXI, 30, 32; CXXXII, 22, 32, 33, 34–40; CXXXIII, 13*).

We are very fortunate in having found quite a number of ingots and castings which throw considerable light on the methods adopted by the metallurgists

[1] *Cf.* the pottery kohl-pot in pl. LXIV, 42, which has lost its foot and base; this jar was found at the level —23·3 ft.

[2] *Mohenjo-daro and the Indus Civilization*, pl. CXLI, 7, p. 491.

[3] Spoons in aragonite and slate, which are obviously copies of mussel-shells, are well known in Egypt and dated to the Twelfth Dynasty. For a good illustration of one of these, see Engelbach and Gunn, *Harageh*, p. 16, pl. XV, 10.

of Mohenjo-daro. But we have yet to find the kilns that were actually used for smelting the ores. Quite conceivably this work was done in the vicinity of the mines, wherever they may have been, and the rough " melts ", not the ore, were transported to the workers in the refined metal.[1]

It would seem that the ore was smelted in an open hearth with charcoal[2] over a cavity in the ground into which the metal ran. As Childe has pointed out, this same process was formerly used in Japan for smelting copper-ore, except that the pits were lined with clay, lighted charcoal being first placed on the floor of the pit and then the ore and charcoal in alternate layers, the reduction being assisted with the aid of a blast.[3]

In Pls. CXXI, 34; CXXXII, 37–9, are seen four more or less regular masses of copper which appear to have been run into a cavity beneath an open hearth or pit.

No. 34 in Pl. CXXI is a plano-convex mass of copper which after cleaning weighs 1 lb. 6 oz. (623·7 gms.) and is some 3·62 ins. in diameter and 1 in. thick. Its base is rounded and fairly smooth, but the top is uneven and shows characteristic puckering due to the contraction of the metal when cooling.

Plate CXXXII.—No. 37 is also copper, the same plano-convex shape, and 6·72 ins. in diameter by 2·35 ins. thick. Especially noticeable are its uneven edges which show that the metal had filled the hole prepared for it and begun to overflow. Its surface also is puckered by contraction on cooling.

No. 38, also of copper, is 5·4 ins. in diameter and 2·2 ins. thick. Like No. 39 in the same plate it has a slight projection on one side and the top shows the scum of the molten metal and is very uneven.

No. 39 is a copper ingot,[4] 4·32 ins. in diameter and 1·26 ins. thick, whose approximate weight after cleaning is 2 lbs. 6 oz. (1 kilo. 077·3 gms.). There is a slight projection on one side of it, and its top is slightly concave and very much puckered.

These last three ingots are the same shape, though they vary in size. They were all found in room 15 of house IV, Block 2, evidently the quarters or workshop of a metal-worker, at levels ranging from –14·5 to –11·1 ft. The rounded, lower surface of each is comparatively smooth as though the hole into which they were run had been shaped about the curved base of a jar. The projecting lugs of Nos. 38 and 39 seem to indicate that the reduced metal was not allowed to run directly into the hole, but first passed along a small channel.

The metal-workers of Mohenjo-daro apparently obtained their raw material from the smelters ready in the form of ingots, but to work the metal up from such solid masses must, I imagine, have been difficult. We have, however, found several very irregular pieces of copper and bronze (Pls. CXXXI, 32; CXXXII, 33, 35) that average 4·7 ins. long and are evidently parts of the " melts " that had been broken up for easier working. One side of No. 35 in Pl. CXXXII is quite smooth, evidently by contact with the smooth surface of the hole into

1 The possible sources of ore have been fully discussed by Khan Bahadur Muhd. Sana Ullah in *Mohenjo-daro and the Indus Civilization*, pp. 482-5.

2 We have ample evidence that charcoal was used as a fuel at Mohenjo-daro, for ordinary purposes if not actually for smelting.

3 *The Bronze Age*, pp. 28, 29.

4 All these pieces were tested by Dr. Hamid.

which the molten metal was run, but No. 33 which has been shown by analysis to be bronze evidently came from the upper part of an ingot as it does not show this feature. It would be a somewhat difficult task to break up a large ingot of copper, but bronze, especially if it contains a high proportion of tin, would be easier to deal with; and it is possible that repeated hammering eventually rendered the ingot so brittle that it readily cracked.

The irregular piece of copper illustrated in Pl. CXXXII, 34, some 3·9 ins. long by 2·53 ins. wide by 0·78 in. thick, seems from its appearance definitely to have been broken from a larger mass of metal, for its longer edge shows a preliminary saw-cut, 0·13 in. deep, after which the piece was snapped off. The side seen in the photograph bears a large cross which may have been the smelter's mark.

Nos. 36 and 40 in Pl. CXXXII are photographs of castings of blade-axes which, as is seen, were so faulty and full of blow-holes as to be unuseable except for re-melting. These two pieces were found together with a smaller fragment of a blade in room 52 of house VI, Block 1, at the level –17·8 ft. All three castings contained only the small amount of tin which would occur naturally as an impurity in the ore.

No. 36 is 6·5 ins. long by 3·35 ins. wide by 0·5 in. thick, and No. 40 measures 8·35×3·25×0·39 ins. The thickness of these castings suggests that it was sometimes necessary to remove a considerable amount of the metal from both faces in making this type of axe. Probably due allowance was made in the moulds for surface defects.

That closed moulds set on edge or on one end were used in casting these three blades seems to me to be evident. They are puckered on both faces and it may be that they were the last of a batch and the metal too cold to run properly. This would especially be the case with copper which naturally does not flow as well as bronze.

The fairly close proximity of the two kilns in the south-west wing of Bl. 1 (Pl. XVII) to the find-spot [1] of these three castings lends some support to the theory that the kilns were used for metal-working. Both kilns and castings date from the Intermediate II Phase. The former are illustrated in Pl. XXXV, (a), and they are described in detail together with the wing of the Block in which they were found (pp. 49, 50).[1]

Plate CXXI.—No. 16 is a simple rectangular rod of cast bronze, 1·32 ins. long by 0·25 in. square in section. Both ends show signs of the parent rod having first been notched with a chisel and then snapped.

No. 19 is also a rod, perhaps an ingot, of cast bronze, but cylindrical in shape and 2·9 ins. long by 0·35 in. in diameter. It is marred by blow-holes here and there. Even without re-melting, it could have been hammered into several useful shapes.[2]

Both these specimens are rough pieces of metal ready to be turned into tools, perhaps chisels. It is quite possible that pieces of metal such as these were sold by weight and that the purchaser took them along to a smith to work up for

[1] Block 1, house VI, room 52.

[2] *Cf.* ingots of similar shape from Kish; *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, pl. XXXVIII, fig. 2.

him. This is the usual custom to-day in those parts of India where metal-working is more or less untouched by outside influences, even with the rarer metals, silver and gold; the client supplies the metal and the jeweller charges for his work.

Plate CXXXII.—In. No. 22 are seen two pieces of silver that had been severed with the aid of a chisel. Together they are 1 in. long by 0·73 in. wide by 0·15 in. thick, and they weigh 11·972 grammes after cleaning.

With them were found the two fragments No. 32, also of silver, which fitted together measure 2·45 ins. long by 1·35 ins. at the widest end which is 0·12 in. thick. These two pieces, which together weigh 107·663 grammes, had been separated by means of snapping the original piece after making a cut about 0·12 in. deep with a fine edged chisel. From their irregular shape these pieces of silver seem to have been melted-up, scrap metal which was subsequently roughly flattened on an anvil. All four pieces had apparently been wrapped up together in a cloth, of which traces were found adhering to them.

Plate CXXXIII.—No. 13 is a curved lead casting, 5·25 ins. across the chord and 1·03 ins. wide in section by 1·1 ins. thick. The angles are rounded and this ingot seems to have been bent after casting.

Blade-axes.

In the first book on the excavations, the blade-axes of Mohenjo-daro were divided into two types :—

(1) Long and narrow.

(2) Short and broad.

The majority of the recently found blades, of whichever type, are copper. If we take those found prior to 1927,[1] into consideration also, we find that out of a total of forty, eleven are bronze, twenty-three copper, while six have not yet been analyzed.

It is possible that some of the blades-axes found prior to the season 1926-7 come from the earlier levels, that is, from below the level —12 ft. We, therefore, give the proportions between the copper and bronze of the Earlier and Later levels for those found since 1927 only :—

Earlier Levels : Of eight axes found, three are bronze, five copper,

Later Levels : Of twelve axes found, five are of bronze, six of copper, and one uncertain.

Though the proportions of bronze to copper as shown by these figures is higher in the Later than in the Earlier levels, it would be unwise to draw any definite conclusions, from the above somewhat scanty data. We have obtained more specimens from the Later than from the Earlier levels owing to the three hoards already mentioned and also to the fact that more work has naturally been done in the higher levels than in the lower strata. I have chosen blade-axes for this comparison, for the reason that these implements, probably largely used in woodwork, would be required to be as tough as possible, unlike knives and other tools that were employed on softer materials.

A detailed description of individual blade-axes is unnecessary, seeing that in addition to the photographs of the better and least damaged specimens the

[1] *Mohenjo-daro and the Indus Civilization*, pp. 495-7.

end and side sections of the principal examples are given in the line drawings. The tabulation at the end of this chapter as well as giving the dimensions also states the locus and level of each.

Inscribed Implements.

There are no signs or inscriptions on any of the blades of the later levels, but in a group of implements found at the low level −24·4 ft., several blade-axes and other objects bore signs and inscriptions incised upon them (Pls. CXXVI, 2, 3, 5; CXXVII, 1; CXXXI, 31, 35–9). Whether these inscriptions are the names of the owners, it is at present impossible to say, but some at any rate seem to be numbers, as, for example, in Pl. CXXVI, 2, 5. I would suggest that the single strokes represent digits and the inverted U-shaped signs read "10". The signs on the reverse of the blade in Pl. CXXVI, 5, may perhaps read "76" and similarly, on No. 2 in the same plate, "19". Unfortunately, it is impossible accurately to test these numbers by the weight of the blades and other objects, for the reason that they were found corroded together into a mass and could only be separated in a chemical bath which, naturally has reduced their weight considerably. The blade-axe, No. 5 in Pl. CXXVI, one of the finest that we have yet found, is fairly well preserved and now weighs 4 lbs. 3⅛ oz. (1 kilo. 910·030 gms.). No. 2 in the same plate which weighs 5 oz. and 13⅓ drs. (165·343 gms.) is the tang of a chisel and must have been inscribed before the chisel portion was broken off. No. 3 in Pl. CXXVI, which is but little damaged, weighs 9¼ oz. (262·233 gms.), but it was useless to weigh No. 1 in Pl. CXXVII, which bears no less than eleven digits,[1] as being very thin it had suffered badly from oxidation. I should like to point out here that the inverted "U" sign was also used in the Egyptian signary, where it has the value 10. In ancient Egypt, also, though it was not common, tools had numbers marked upon them, and I would refer the reader to a Second Dynasty axe from that country on which the number 43 was marked.[2] In early Egypt also, as Möller has pointed out, the digits were sometimes written vertically, as is part of the number on blade No. 5 in Pl. CXXVI.[3]

Inscribed tools and weapons of copper and bronze have been found in larger numbers at Harappā than at Mohenjo-daro, from which it has been deduced that the former city is slightly older than Mohenjo-daro. It is certainly significant that at the latter site inscribed metal objects come from the very early levels only.[4] The blade-axes in Pl. CXXXI, 31, 35–9 were found in room 15 of house I, Block 12A, (Pl. XVI).

Hafting.

We do not yet know how these blades were secured in the haft, that is, whether the latter was split or holed, nor whether a portion of the butt projected appreciably on the reverse side of the haft. From modern Indian axes, some of which are not unlike those from Mohenjo-daro, it may be inferred that the ancient

[1] Perhaps a duo-decimal system.

[2] Petrie, *Tools and Weapons*, pl. III, fig. 108. For excellent examples of the arrangement of numerical signs on weights, see Petrie, *Weights and Measures*, pl. XI, p. 15.

[3] *Ancient Egypt*, 1914; p. 136.

[4] See also the inscribed knife in Pl. CXXXIII, 1, which was found at the level 18·4 ft. below datum.

axes were not set at right angles to the haft, but at an angle sloping slightly downwards. This must certainly have been the case with the narrower blades if they were used as adzes, unless a handle of the ancient Egyptian type was used with this kind of blade.

Richards has pointed out that clefted hafts are in common use in southern India, with metal rings above and below the cleft to prevent the wood from splitting.[1] I do not think that metal rings were used at Mohenjo-daro as we have found none that are likely to have been used for this purpose. On the other hand, lashings or rings of cord or fibre may have been used, and these like the hafts themselves would inevitably have perished.[2] Another method illustrated by Richards is to clamp the blade against the side of the haft head with a block of wood, both haft and block being secured by metal rings. Even with this very clumsy arrangement it is possible to fasten a blade weighing as much as 4 lbs. 7 oz. (2 kilo. 012·8 grms.).[3]

I am still of the impression that our blades were lashed into a split haft from the back of which the near-end projected some considerable distance. The spring of the haft when the two limbs were securely fastened together above the blade would grip it very securely. It is possible that a cement of some kind was also used to bind the lashings together; shellac would have served this purpose admirably. The almost parallel sides of the blades from Mohenjo-daro together with their very gradual fining in thickness would obviate any tendency for them to shift in their handles.

Types of Blade-axes.

Type I (CXIII, 4, 5; CXVII, 3; CXVIII, 2; CXX, 26, 28–30; CXXII, 7–9, 13; CXXVI, 3–5; CXXVII, 2; CXXVIII, 1, 2; CXXXI, 21, 22, 28, 34–37).—Blades of this long-narrow type are the most frequently found, and it is possible that some of them were used as adzes. Ordinarily an adze should have an edge like that of the modern chisel, *i.e.*, sloped on one side only, but it is doubtful whether this distinction was generally observed in ancient India and elsewhere. We have so far found only one blade (Pl. CXXII, 9) with a single slope to its edge. There is, however, comparatively little variation in shape among these narrow blades. They mostly have double-sloped, lunate edges that are sometimes slightly splayed, and the butt is usually straight cut or very slightly rounded, the former being general. The sides are usually parallel or nearly so, but occasionally they taper towards the butt, as in Nos. 28 and 30 in Pl. CXX, and No. 21 in Pl. CXXXI. The thickest part is about two-thirds of the way down and the sides are practically always square cut, which suggests that this part of the blade was the last to be finished off. No particular economy in metal was observed, otherwise the tops would have been rounded and the blades narrowed towards the top. Nor was there any skimping in thickness; most of the blades might even be termed substantial for their size. It should, however, be noted that the blades of both this group and *Type II* would lose very little in weight of metal after a great deal of use. Blunt and turned-up edges could easily be hammered into shape again, and actual breakage would occasion

[1] *Man*, May, 1932, Sect 137.

[2] Richards also has suggested this.

[3] The heaviest blade from Mohenjo-daro is 4 lbs. 3-1/8 oz. (1 kilo. 910·030 gms.).

but little loss beyond the cost of re-casting. I should imagine that such substantial blades would with care last for many years, and even when finished with as blades, they would still have had some value as old metal.

No. 30 in Pl. CXX (see also Pl. CXXII, 7), is a well-made bronze tool. Both faces are coated with a thick, even skin whose edges are plainly visible on both sides.[1] This skin, which has not been observed before on any of the blades, may be due to toughening the metal by a special process, or possibly it may be the original skin of the casting, which, if so, was remarkably clean and extremely regular in thickness (0·03 in.). This skin does not vary in colour from the core; nor has corrosion been any kinder to it. This tool appears to be much too smooth to be unfinished; it was, moreover, found with No. 8 which is quite normal in appearance.

Blades that are very similar to these in shape are known in the Second Predynastic Culture at Nagada in Egypt,[2] one somewhat like the exceptional form in Pl. CXX, 30, was found at Susa.[3] At Nāl in Balūchistān the long axes usually have rounded or pointed tops, quite unlike the long blades of Mohenjo-daro though they recall the blades from the "A" Cemetery at Kish,[4] one from the "gold graves" at Ur,[5] and certain blades from Hissarlik.[6] It seems that this long parallel-sided form of axe with its square butt and slightly splayed edge is peculiar to very early Egypt and India, though flint blades of somewhat the same shape are known from the Baltic region.

Type II (*Pls. CXIII, 1, 2; CXV, 14; CXVII, 1, 2; CXVIII, 3–5; CXX, 31; CXXVIII, 3, 4; CXXXI, 20*).—The short, broad type of axe, several of which are shown in both line and photograph, was evidently not so popular and we are fortunate that three hoards of copper and bronze produced so many specimens. The lunate edges of this type of axe are considerably more splayed than in *Type I*, though less so than the edges of certain Cypriote and Italian axes which they otherwise resemble closely. This feature seems to be more pronounced in the blades from the later levels than in the earlier specimens, though with but few specimens from the lower levels we make this comparison with reserve. These blades, which are all of copper except Nos. 1 and 2 in Pl. CXVII which are bronze, are generally very carefully fashioned and regular in shape. Their faces as a rule are slightly convex, and like the *Type I* blades they were first cast, then hammered and finished off with some abrasive. The edges always have a double slope and the butt is square cut and thinner than the rest of the blade. The largest axe of this type (Pl. CXIII, 2) is 7·9 ins. long and the shortest complete one (Pl. CXVII, 2) 2·45 ins. long. It is possible, however, that this very short blade, though apparently complete, was cut down from a blade of *Type I*; its unusual concave butt certainly suggests this.

[1] They are undoubtedly not the marks that would have been left by a closed mould.

[2] Childe, *Most Ancient East*, p. 89, fig. 32.

[3] J. de Morgan, *Préhistoire Orientale*, II, p. 297. *Mém Dél en Perse*, t. XIII, pl. XXIII, figs. 7, 9, 10.

[4] *Anthropology Memoirs*, Field Museum, Chicago, vol. I, pl. XXXIX, fig. 9.

[5] Woolley, *Museum Journal, Philadelphia*, vol. XIX, No. 1, p. 15. *Royal Cemetery*, pl. 229, where they are classed as chisels.

[6] Peake and Fleure, *Way of the Sea*, p. 66.

The later axes of this type differ from the few specimens from the earlier levels in that their sides are markedly concave and, moreover, narrow towards the butt, whereas apart from the splay the sides of the earlier axes are very nearly parallel. In general, the greatest thickness in this type of blade is about three-quarters of the way down. No. 2 in Pl. CXIII, No. 2 in Pl. CXVII, and No. 3 in Pl. CXXVIII are unusual, especially the two latter, in having no extra thickness at this point.

No. 31 in Pl. CXX, which is 4·9 ins. long, is a portion only of a blade. It was found with a chisel and the broken saw in Pl. CXXI, 40 and the arrow-head seen in Pl. CXXV, 46.

A copper axe almost identical with those shown in Pl. CXIII, 1, 2, and dated to the Early Bronze Age was recently found in the shale at Ipplepen in Devon at a depth of about 2 ft.[1] If it were not that this specimen has a convex instead of a straight edge to the butt, it would not have been surprising to find it at Mohenjo-daro. The butt-end of this English specimen had been thinned out almost to a second cutting edge, a feature seen in some of the long, narrow axes of Mohenjo-daro (Pl. CXVII, 3), though not in the short, broad type.

Though the slightly tapered and concave-sided variety of the broad axe of Mohenjo-daro is duplicated in some of the Italian implements,[2] and the parallel-sided form is known from Susa,[3] we have yet to find at Mohenjo-daro the spatulate form that is known in early Elam.

Axe-adze (*Pls. CXX, 27 ; CXXII, 12*).

This very fine axe-adze is the first specimen of its kind to be found at Mohenjo-daro, and it is also the first socketed implement to be found there. From its general appearance, however, I am, for the present, disinclined to accept it as being a product of the Indus Valley Culture as we know it ; I would prefer to regard it as of later date, perhaps even as late as the Kushān Period, despite its being found 6 ft. below datum.

It measures 10·15 ins. long and has a somewhat irregular projecting socket that averages 1·7 ins. in diameter outside. The horizontal blade is 2·52 ins. wide and the axe-blade 3·05 ins. ; and both have double-sloped edges. The height of the implement from the base of the socket to the top of the two blades is 2·4 ins. and its width above the socket 2·28 ins. This implement is of hard cast bronze of a definitely yellow colour and is rather roughly finished.[4]

The socket-hole is slightly oval, 1·45×1·3 ins., either to accommodate an oval shaft or to permit of wedging, though the deviation from the round is so little that the wedges would have had to be very thin.

Very similar axe-adzes, with a short tubular collar or without one, are characteristic of the Copper Age in Hungary.[5] A specimen was found in the Second City of Troy, which is dated by some as between 2,400 B. C. and 1,900 or 1,800

[1] *Antiquaries Journal*, vol. XII, p. 70.

[2] Petrie, *Tools and Weapons*, pl. 1, fig. 27.

[3] *Mém. Dél. en Perse*, t. XIII, pl. XXIII.

[4] Khan Bahadur Muhd. Sana Ullah reports that the oxidized crust of this axe-adze contains 95·96 per cent. copper and 0·21 per cent. tin. The core contained 86·64 per cent. copper and 11·03 per cent. tin.

[5] Childe, *Bronze Age*, pp. 73-5, fig. 6 (6).

B. C.[1] According to Sir Arthur Evans, the axe-adze was used in Early Minoan II times;[2] and a very fine specimen has been recovered from a shaft-grave at Maikop in the basin of the Kuban river, which Peake and Fleure provisionally date to between 2,600 and 1,900 B. C.[3] If we can safely regard our specimen as belonging to the latter end of the Indus Valley civilization, as represented at Mohenjo-daro, it is the oldest specimen of the axe-adze that has as yet come to light. But it should be remembered that no axe-adze has yet been found in Babylonia of earlier date than c. 1,100 B. C.[4] The deep collar around the shaft-hole of the Mohenjo-daro example does not, however, occur in any of the examples quoted above, though Childe has pointed out that in all the Sardinian examples as well as many Hungarian specimens there is a short tubular projection round the shaft hole.[5] [6] [7]

An implement such as this would have been extremely useful to separate bricks from a wall, especially where the cement is only mud, and it is quite conceivable that it was accidentally left where it was found by a mason in search of ancient bricks for the Buddhist stūpa and monastic buildings, especially as it lay in the wide, open space between Blocks 7 and 10, whence bricks were evidently robbed in quantity.

The fact of this socketed axe-adze appearing in a site which has hitherto produced no socketed tools need not unduly surprise us, for socketed axes of other types are well known from Sumer dating from even before 2,500 B. C., and it is, therefore, reasonable to suppose that the Indus Valley people knew of socketed tools, even if they themselves did not use them. In support of this supposition I would adduce a pottery model of an axe, Pl. CXII, 1 (DK. DG. 74), found as recently as 1932 in Block 7 at the level − 41 ft. Some 4·3 ins. long by 0·58 in. thick at the back of the blade, it is complete except for a slight break at the top of the handle, which is rectangular in section with rounded angles. That this model-axe, whose form is quite new to us, is intended to represent a socketed tool is proved, I think, by the colour of its slip, which is a thick, dark chocolate, evidently intended to represent copper or bronze. This colour extends right round the back of the handle, as is seen in the photograph, which it would not do if the model had been intended to merely represent a blade inserted in a cleft handle. In shape this axe is not unlike one on the stela of Naram-Sin.[8]

[1] Childe, *Dawn of European Civilization*, p. 58, fig. 28 (4).

[2] *Palace of Minos*, p. 194, No. 3.

[3] *Steppe and Sown*, pp. 23-5, 30, fig. 11 (c).

[4] Childe regards this implement as a combination of two Sumerian tools; *Dawn of European Civilization*, p. 150.

[5] Childe, *Bronze Age*, p. 74. This projection is said to have originated by punching a hole through the implement while it was red-hot, which would leave a ridge round the base of the shaft-hole. This extra metal would, of course, afford more hold for the handle, and if purposely prolonged the purchase would be even greater.

[6] These tubular shafts can sometimes be very long, as in an early axe lately found at Susa; Mecquenem, *Antiquity*, Sept., 1931, p. 337, fig. 15 (12).

[7] Very like the axe-adze from Mohenjo-daro in all respects is one of two found in the treasure of Astrabad, for which see :—*Archaeologia*, vol. XXX (1844), pl. XVI. Rostovtzeff, *Journ. Eg. Arch.*, vol. VI, pl. III, fig. 13. A still closer parallel is afforded by certain axe-adzes from Tépé Hissar, provisionally dated to the first half of the Second millennium, B. C.; Schmidt, *Tépé Hissar Excavations*, 1931, pl. CXVIII.

[8] *Mém. Dél. en Perse*, t. I, p. 150.

This model axe was carefully made and particular attention had been bestowed on its sharp edge. It may have been a child's toy, but on the other hand it will be remembered that in Sumer clay models of tools and weapons were for reasons of economy, sometimes placed in the grave instead of the real articles.[1] For want of direct evidence, however, we cannot say that this particular model was intended to serve this purpose, especially as we have found no case of inhumation of the dead.

Another pottery model of an axe (DK 8881) is illustrated in Pl. CIX, 16 (see also Pl. CX, 34). It is 2·15 ins. long with a round handle and flat blade that thickens towards the handle. There is no slip nor any trace of colouring. In this model which was probably made by a child, the blade differs from No. 1 in Pl. CXII, and in this case also we have yet to find its counterpart in metal. Locus: Bl. 7, ho. III, rm. 41. Level: – 18·4 ft.

Spear-heads (*Pls. LXXI, 33; CXIII, 7; CXVII, 8, 11; CXX, 7, 9; CXXVI, 1; CXXVII, 1* (?)*; CXXXI, 29, 38, 39* (?)*; CXXXIII, 25, 26*).

Among early weapons it is very difficult to distinguish between certain of the spear-heads and the larger knives and daggers, especially as these last are in general unlike the daggers of other countries. It is possible, therefore, that the reader may not always accept my identifications which in some cases are advanced with some reserve. Lance-heads, however, can be identified with more certainty for the majority are too short to have usefully served any other purpose. It is quite possible that No. 3 in Pl. CXIII was a spear-head, but I have included it amongst the swords owing to its long tang and very unusual length. The two holes at the base of this blade must have been intended to take rivets rather than to fasten on a wooden mid-rib; the latter would have been superfluous as the blade was adequately thickened down the middle. The measurements of all these spear-heads will be found at the end of this chapter.

The longest spear-blade that we have found in recent years is one illustrated in Pl. LXXI, 33, which was found in the SD Area. It is bronze, and 15·3 ins. long by 4·8 ins. broad, by 0·15 in. thick in the blade and 0·2 in. thick at the tang. Two small holes, 1·3 ins. apart at the base of the blade served to secure a wooden mid-rib to strengthen it. A copper blade which seems to have been approximately the same size is illustrated in Pl. CXXVI, 1, and also in Pl. CXXXI, 29. The greater part of this blade is, unfortunately, missing, and the point was found doubled over, as seen in the illustration. In this condition it measures 7·3 ins. long. It was found with the other metal implements illustrated in this and the succeeding plate at the very low level of – 24·4 ft. in room 15 of house I, Block 12A.

[1] For examples of these model clay implements, see *Anthropology Memoirs*, Field Museum, Chicago, vol. I, pls. VII, 24; LXXV, 7, 8. A socketed, clay axe, unearthed at Ur in the pit "PFT" has been dated to the Late al 'Ubaid Period; Woolley, *Antiquaries Journal*, vol. X, pl. XLVII, fig. a.

Most of the very early clay models of tools found in Sumer, for instance at al 'Ubaid, Ur and Lagash, are said by Frankfort to be imitations of stone rather than of metal originals. *Archaeology and the Sumerian Problem*, Oriental Institute, Chicago, p. 19. The specimens from Mohenjo-daro are of later date than those referred to by Frankfort and are most certainly copies of metal weapons.

Another fine copper blade, 10 ins. long by 3 ins. wide by 0·13 in. thick, which, however, is very badly broken, is illustrated in Pl. CXVII, 8. This example has no tie-holes in the blade. It was found with No. 6 in Pl. CXXIII, a weapon that has been included amongst the daggers, and the razor (?) seen in Pl. CXIX, 6. The copper spear-head, No. 11 in Pl. CXVII (see also Pl. CXX, 9) is 9·1 ins. long. It is a thin, well-preserved blade and the end of its tang is edged.

No. 7 in Pl. CXIII is now 8·4 ins. long; the end of the tang is missing, though it would appear not to have been very long.

No. 9 in Pl. CXVII (see also Pl. CXX, 20) may be a spear-head which owing to repeated sharpening has been considerably shortened and altered in shape. In its present form, it might conceivably have been used as a knife. On the other hand, it does resemble a blade found some time ago, which, however, has no tie-holes and is more substantially made.[1]

These spear-blades, with which the copper blade No. 7 in Pl. CXX should be included and also No. 25 in Pl. CXXXIII, were already well known to us, and I have before suggested that, owing to their remarkable thinness in proportion to their length and breadth, they were protected from buckling up by the shaft in which they were set being prolonged as a tapering mid-rib along the axis of the blade.[2] That such a wooden mid-rib was actually used seems to be proved by the exceptionally fine specimen, No. 33 in Pl. LXXI, having two holes to take a wire tie in the same way as in the pierced blades of Cyprus and the Cyclades.[3]

The comparatively wide distance apart of these holes, which is especially noticeable in Pl. CXVII, 9, suggests that the rib was of considerable width even some distance along the blade. Even with this stout support, it might be imagined that owing to their thinness—they average only 0·12 in. thick close to the tang—they would have tended to crumple at their edges. Perhaps this did often happen, but they were bent straight again by their owners. Petrie has remarked that in ancient Egypt "apparently broad blades were used as a kind of long sword for slashing",[4] and it may be that these weapons also were used for that same purpose.

The copper blade No. 1 in Pl. CXXVII (see also Pl. CXXXI, 38 and 39) had the point doubled over, which concealed a number of digit marks incised in two rows, one of four and the other of seven. The length of the restored blade as it appears in Pl. CXXVII is 11·4 ins. Owing to the presence of the rivet-hole, at the base of the tang which is 0·16 in. in diameter and chamfered, I am somewhat doubtful whether this blade should rightfully be classed as a spear-head, especially as its point is considerably broader than those of other examples; possibly this was a large double-edged knife. Its estimated width is 3·1 ins. and its greatest thickness near the tang 0·13 in. The digits on this blade may denote its weight, or else its number in a series.

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXXXVI, 3. For a comparison between this type of blade and one found in Sumer, see *Antiquity*, Dec., 1931, p. 463.

[2] *Op. cit.*, p. 497.

[3] Hall, *Bronze Age of Greece*, p. 87.

[4] *Tools and Weapons*, p. 31.

Lance-heads (?) (*Pls. CXVII, 5, 7, 10 ; CXX, 6 ; CXXX, 21 ; CXXXIII, 16*).

These blades have been identified as lance-heads on account of their shortness which would have precluded their being useful as knives unless for a very special purpose. Moreover, they are more or less triangular in shape. Nos. 5 and 7 in Pl. CXVII (see also Pl. CXX, 6) are both copper ; the former is 3·33 ins. long with blunt edges which certainly suggest that it was not used as a knife, the latter a well preserved blade, 3·65 ins. in length, which if a little shorter might have been an arrow-head, though none of this exact shape have yet been found.

Arrow-heads (*Pls. CXXI, 1–5 ; CXXV, 42–7, CXXVII, 7–11 ; CXXXI, 18 ; CXXXII, 28–30*).

In the earlier excavations up to 1927, arrow-heads were rather rare finds, but our subsequent excavations in the DK Area have produced quite a number in varying states of preservation. Their number in this area is perhaps accounted for by the poverty of many of the houses of the Late Period. One would not expect bows and arrows to have been used by the wealthier residents of Mohenjo-daro, nor are arrow-heads often found in the larger houses.

Unless we are to accept the smaller " lance-heads " as being in reality arrow-heads, for which they seem to me to be much too big, all the arrow-heads used at Mohenjo-daro conform to one general type. They are thin, flat, pieces of copper with long narrow barbs and no tang. As with the spear-heads, the shafts in which the arrow-heads were set must also have served as a kind of mid-rib. In fact, it would have been quite impossible to set these heads in a shaft at all without enclosing a part in the wood.[1]

There seems no doubt that the prototypes of these metal arrow-heads were flint arrow-heads of the swallow-tail type; but none of the latter, nor indeed any stone arrow-heads at all, have yet been found at Mohenjo-daro. It is possible that the use of stone for this purpose had already become obsolete, even perhaps before the foundation of the city.[2]

No metal arrow-heads of the type found at Mohenjo-daro have as yet appeared in Egypt ; nor do I know of this pattern from any Sumerian or Elamite site. Practically identical heads are, however, well known at Minoan and Mycenean sites, though of comparatively late date. Apparently it took some time for the metal arrow-heads to oust those of stone in some of the ancient cultures, probably for the reason that metal was more expensive and likely to be lost.

Owing to the simplicity of the general shapes, it is unnecessary to describe any of these arrow-heads in detail. In length they average 1·19 ins. and in breadth and thickness 0·64 and 0·07 ins. respectively. They were in every case

[1] Tie-holes were made for this purpose in arrow-heads of almost identical form from Zafer Papoura, Crete, which are dated to the L. M. III Period ; Hall, *Aegean Archæology*, p. 251. *Cf.* also the bronze arrow-head of Late Helladic II date from Tomb 515 at Mycenae, which has three (probably four) holes for attachment to the shaft ; Wace, *Archæologia*, vol. LXXXII, p. 59 ; pl. XXX, 38.

[2] It is true that we are unable to examine the lowest levels on account of water in the soil ; but if stone arrow-heads had been used in the early settlements, one would have expected to find stray examples now and then that had been kept from strata no longer accessible.

cut out of sheet metal, and the colour of some suggests that they are bronze. No difference can be discerned between the arrow-heads from the various levels; they have been found as low as 22·1 ft. below datum (Pl. CXXXII, 29), but they are more frequently found in the upper strata.

Doubtful Type (Pls. CXXVI, 11; CXXXI, 18).—What may be an arrow-head of unusual type is illustrated in Pls. CXXVII, 11; CXXXI, 18. It is leaf-shaped and 1·5 ins. long; too small, I think, to be a lance-head.

Knives.

In such a finely graduated series, it is almost impossible to draw a line between knives and daggers; many of them may in fact have served both purposes, as did the dagger of mediæval Europe which was often used for cutting meat at table and perhaps a few hours later for a more fell purpose. The primary purpose of a knife being, however, to sever something and of a dagger to thrust, I propose in this section to deal solely with those blades which from their shapes are obviously suited for cutting only, grouping them as far as possible into types.

It should here be stated that no sheath for either knives or daggers has yet been found. Whether of wood or leather or some woven material, none could have survived the dampness and saltiness of the soil. We do not even know how these weapons were carried; it may have been in a belt, or perhaps under the arm in the manner of some of the tribes of the North-West Frontier and also the Sudan. Those of the blades which are too long to have been carried in the latter manner must have been slipped in a belt, though we have no evidence from seal or statue of the wearing of such an article of clothing by males.

Type A. Broad, leaf-shaped blades (Pls. CXV, 11; CXVII, 9; CXIX, 5; CXX, 4, 5, 10, 11; CXXIII, 1, 4; CXXIX, 6, 7 9, 10, 11; CXXX, 8, 18; CXXXI, 13, 33; CXXXIII, 1, 11, 12, 14, 17, 22, 27).—The broad, leaf-shaped knife edged on both sides and usually with a very long tang, is by far the commonest form of knife at Mohenjo-daro. With the one exception, No. 5 in Pl. CXX which is bronze, all the knives of this type are copper. They vary very considerably in size and shape and some are so worn by use and frequent sharpening that they have lost their original shape. In fact, I have already pointed out that some of them are not unlike lance-heads and it is possible that the latter were eventually converted to this purpose after being worn down by repeated honing.

The greatest thickness of this type of knife is either close to or at the point where the blade joins the tang; or the tang itself is the thickest part. This suggests that these knives were cut out of sheet metal and the blade subsequently hammered to toughen and temper it. There would be little need for the tang itself to undergo this process as I have no doubt that the handles also enclosed a portion of the blade itself, as is seen in a knife of another type (Pl. CXXX, 28), one of two examples of the survival of a piece of wood (see p. 464).

No. 11 in Pl. CXV was found with other objects in the large copper vessel No. 16 in the same plate. It is copper, 4·12 ins. long, and owing to its thinness had suffered badly from corrosion, though it seems likely from the fact that it is still symmetrical that it was originally much the same shape. In order to thicken its short tang a strip of copper was wrapped round it and a hole for a rivet cut right through the three thicknesses of metal. Another rivet-hole well up the blade shows that the handle enclosed part of the latter.

No. 9 in Pl. CXVII (see also Pl. CXX, 20) like No. 4 in Pl. CXXIII may be a converted spear-head. It seems to have been so often sharpened that it has lost its original shape.

No. 13 in Pl. CXXXI is a nearly perfect blade, with a rounded tip and only the right-hand side edged.

To a portion of the long tang of the broken knife No. 33 in Pl. CXXXI, which is now 5·6 ins. long, some very decayed wood that once formed part of the handle is still adhering.

No. 1 in Pl. CXXXIII shows a very badly corroded copper knife, now 4·95 ins. long, from the level – 18·4 ft. The long, flat tang has a rivet-hole at its end. On one side of this knife there are eight incised strokes or digits in a close group, four vertical strokes just above four horizontal. Comparison should be made with the other marked implements in Pls. CXXVI, 2, 3, 5; CXXVII, 1.

Type B. Leaf-shaped blades with curved tips (Pls. CXIII, 6; CXXVII, 4(?); CXXIX, 8; CXXXIII, 21, 24, 28, 31(?)).—With the exception of No. 28 in Pl. CXXXIII, no complete knife of this type has been found, probably for the reason that both the shape and the fineness of the tip made it especially liable to damage. Some perfect specimens have, however, been unearthed at Harappā.[1] All the examples illustrated are copper. This type of knife appears to be more common in the earlier than in the later levels, but none have yet been found below – 17·2 ft. The tip and general shape show that the knives of this type were used for fine work, but what that was it is at present impossible to say. If they were surgical instruments, their comparative rarity would be explained.

No. 4 in Pl. CXXVII (see Pl. CXXXIII, 31) must, I think, have been a knife of this type, though it has been much worn down by repeated sharpening.

In No. 24 in Pl. CXXXIII the curvature of the point is not very pronounced.

Type C. Narrow, straight knives (Pls. CXIX, 2 (?); CXX, 8, 12, 25; CXXX, 19, 20, 23, 24; CXXXI, 15, 16).—These copper knives, of which we now have eight specimens, all of small size, are quite distinctive in shape, the edge of the long, narrow blade being parallel with the back of the knife or nearly so.[2] They all show signs of considerable wear and repeated sharpening. The largest of the eight (Pl. CXX, 12) is 4·19 ins. long.

Whether No. 2 in Pl. CXIX should be included in this type is uncertain, as the tip of its tang and a considerable portion of the blade are missing. Its back is, however, relatively thick as is usual in this group, and it fines down very gradually towards one edge.

Type D. Triangular knives with upturned points (Pls. CXX, 22, 23; CXXII, 4, 5).—Only two knives of this type have been found at Mohenjo-daro, both in the later levels, and one with a rather more curved blade at Harappā.[3] A very similar knife, but with a longer tang and more attenuated point is known from Egypt and thought to date from the Sixth Dynasty.[4] Knives of this shape

[1] *Ann. Rep. Arch. Surv. Ind.* (1926-27), pl. XXII, 4, 5.

[2] *Cf.* a blade of the XXVIth dynasty of Egypt; Petrie. *Tools and Weapons*, pl. XXV, fig. 86.

[3] *Ann. Rep. Arch. Surv. Ind.* (1926-27), pl. XXII, 12.

[4] Petrie, *Tools and Weapons*, pl. XXIV, fig. 23. Mentioned as being in the Brit. Mus., No. 12277.

could hardly have been used for ordinary purposes; they may have been employed to cut fine leather, for their points would be out of the way but nevertheless handy for delicate work.

In each of the two knives from Mohenjo-daro the back is thick, especially towards the tang; and the blades fine down gradually towards the curved edge and the point. No. 22 in Pl. CXX (see also Pl. CXXII, 5) appears from its colour to be copper, and the thickness of the back and tang averages 0·2 in. Unfortunately, its edge has been badly corroded and is now as much as 0·1 in. thick in places. As very little of the edge can have actually gone, it must either have been very abrupt, or the blade was perhaps newly made and still unsharpened. No. 23 in Pl. CXX (see also Pl. CXXII, 5) is also copper and reaches a thickness of 0·19 in. at its most substantial part.

Type E. Broad, curved-edged knives (Pls. CXIX, 8; CXX, 16; CXXX, 28; CXXXI, 9, 27).—Only three knives of this distinctive shape have been unearthed up to the present, one from the level −4·9 ft., another from −13·2 ft. and a third from −19·7 ft. All three are copper and carefully made.

The tang of No. 8 in Pl. CXIX (see also Pl. CXX, 16) is missing, but that it was once rivetted into the handle is proved by the remains of a small hole at the broken edge. No. 28 in Pl. CXXX (see also Pl. CXXXI, 27) has a portion of the original wooden handle still adhering to it—a rare find amongst the implements of Mohenjo-daro. The thickness of this piece of wood, which was secured by three rivets set in a triangle, is only some 0·26 in. Owing to the patina on the corroded blade, which we cannot remove for fear of damage to the remains of the handle, and the poor preservation of the latter, it is impossible to say for certain whether separate pieces of wood were used to make the handle. The probability is that the handle is a single piece of wood which was split for the insertion of the tang and a portion of the blade. A small fragment of this wood was sent for examination to the Forest Research Institute, Dehra Dūn; it is reported to be one of the *Papilionaceae* and most likely *Dalbergia sisu* (*Roxb*), a wood that is in common use for handles of hammers and other tools in India to-day.[1]

The third knife of this type, No. 9 in Pl. CXXXI, is very small, measuring only some 1·32 ins. long, but it has the appearance of being very much worn down.

The first two of these knives are very much bent, but whether this was intentional or not remains to be decided when other specimens are found. As, however, they are extremely thin, it is possible that the curvature is due solely to earth pressure.

The slight kink in the blade of No. 28 in Pl. CXXX and the shortness of No. 9 in Pl. CXXXI are to be attributed to repeated honing.

Type EA. Narrow, curved-edged knives (Pls. CXIX, 3; CXX, 24; CXXII, 2, 3; CXXX, 22, 27; CXXXI, 12, 17).—Very similar to *Type D* are the knives of this group, of which we have five specimens in all varying in size from 2·82 ins. to 3·65 ins. long. They are of copper, with the possible exception of No. 24 in Pl. CXX, which, though not analyzed, has the appearance of being bronze. The back is straight or nearly so, the slight curvature of No. 22 in Pl. CXXX probably being merely accidental, and is, in general, the thickest part. No. 2

[1] Called the Yali in Sindh and used to grow plentifully in the Shikārgāhs of that province.

in Pl. CXXII is very like a knife of the Sixth Dynasty of Egypt, save that in the latter the blade is more sharply cut away towards the tang;[1] and No. 3 in the same plate resembles a knife dating from the Twelfth Dynasty.[2] Some minute fragments of a woven material, probably cotton, were adhering to the blade of No. 24, Pl. CXX, but, unfortunately, not enough for microscopical examination.

Type F. Hollow-backed knives (Pls. CXX, 13; CXXII, 11).—No. 13 in Pl. CXX (see also Pl. CXXII, 11) is the only specimen of this type that has yet been found at Mohenjo-daro. It is copper, and it has a thick concave back from which it gradually fines down towards the convex edge.

Type G. Double-curved knife (Pl. CXX, 14).—This very curious copper knife is as yet the only example known. Unfortunately, it is badly corroded and no trace remains of its edge, whose position is, therefore, quite uncertain.

Knives of uncertain type (Pls. CXIX, 7; CXXII, 1; CXXX, 9; CXXXI, 23).—The colour of No. 7 in Pl. CXIX suggests that it is bronze. It is difficult to decide whether this blade was a knife or not as it has no apparent edge, though it can hardly be regarded as unfinished since it has a rivet-hole, 0·05 in. in diameter, near the rounded end.

The bronze knife No. 1 in Pl. CXXII has unluckily lost a large portion of the blade. The short, rounded tang is not unlike that of No. 2 in the same plate, but there the resemblance between the two knives ceases, and it is probable that No. 1 was originally similar in shape to No. 11 in the plate. The curved edge is fairly sharp, and there is also some indication of an edge where the blade is broken off, which may be accidental though there is the possibility that after being broken the knife was converted into a razor.

No. 9 in Pl. CXXX (see also Pl. CXXXI, 23) must have been a knife of some considerable size, since even now it is 6·8 ins. long. It is copper and very badly corroded so that no trace of the edge remains. Some very rough notches on its concave side might even be taken to indicate that this object is a broken saw-blade.

Type H. Both knife and dagger (Pls. CXIX, 4; CXX, 15, 21; CXXVII, 3; CXXIX, 1; CXXXIII, 32).—The double-edged blades of *Type H* are an elongated and thinner form of *Type A*, and would have been extremely useful for either thrusting or cutting, since the blade graduates slowly down to a somewhat obtuse point. The four examples illustrated are all copper and range from 4·3 ins. to 9·3 ins. in length. The lowest level at which one was found (Pl. CXXIX, 1) is 23·2 ft. below datum. No. 3 in Pl. CXXVII (see also Pl. CXXXIII, 32) has two rivet-holes, each 0·09 in. in diameter, one at the base of the blade and the second at the end of the tang. One edge of this dagger-knife is slightly concave owing to wear and frequent sharpening.

Type I. (Pls. CXXIX, 4; CXXXIII, 23, 29, 30).—In two of these three copper blades the point is narrow, and it is probable that with the missing tip No. 23 in Pl. CXXXIII was as long in proportion to its breadth. This type of dagger-knife also is double-edged, and the concave sides suggest that they were more generally used for thrusting than for cutting; indeed, it seems most probable that they were used exclusively as daggers. They all come from the earlier levels, the lowest from 19 ft. below datum.

[1] Petrie, *Tools and Weapons*, pl. XXIV, fig. 22.

[2] *Op. cit.*, fig. 27.

Type J. Daggers (*Pls. CXX, 1–3; CXXIII, 2, 3, 5, 8; CXXIX, 3, 5; CXXXIII, 33, 35*).—I think there can be no doubt that this type of blade is a dagger; the abrupt shoulders of some of them, for instance, Nos. 1 and 2 in Pl. CXX, and especially No. 35 in Pl. CXXXIII, would withstand very considerable pressure and also provide an ample bearing for the haft.

All except one appear from their colour to be copper. The exception, No. 3 in Pl. CXX (see also Pl. CXXIII, 8), has a decidedly yellowish tinge which suggests bronze. They vary in length from 7·4 ins. (Pl. CXXIII, 2) to 13·35 ins. (Pls. CXX, 3; CXXIII, 8). No. 34 in Pl. CXXXIII was found 23·2 ft. below datum and No. 2 in Pl. CXXIII at the level – 5 ft., so that their use extended over a very considerable period, if not throughout the occupation of the city.

Some of these daggers are not so well made as others and none were rivetted to the handle. Unlike the tang of many of the knife blades, that of the dagger is usually slightly pointed at the end which in some cases is even edged to permit of easy insertion in the handle. These daggers are thick for their size, though not unduly so, and there is no trace whatever of a mid-rib.

Type K. (*Pls. CXX, 18, 19; CXXIII, 6, 7*).—These two bronze blades are quite unlike any of the others found; for each has a definite mid-rib, and they were certainly used as daggers. Both belong to the later levels, No. 18 in Pl. CXX (see also Pl. CXXIII, 7) being found at 9·2 ft. below datum and the other at 6·6 ft. below datum.

No. 19 in Pl. CXX (see also Pl. CXXIII, 6), 11·5 ins. long by 0·2 in. thick, was found adhering to the spear-head seen in Pl. CXVII, 8, and the razor(?) in Pl. CXIX, 6. The edges of this dagger have suffered somewhat through corrosion, and at the broken end of its somewhat roughly made tang there is a rivet-hole. The sharp but uneven ridge down the axis of the blade on either side was continued on to the thin, flat tang; and the metal on each side of this rib was slightly hollowed by hammering towards the edges, perhaps purposely so as to make sharpening an easy matter as in a hollow-ground razor.[1]

The proportion of tin in No. 18 in Pl. CXX (see also Pl. CXXIII, 7) is about 2 per cent. The rather sharp and uneven mid-rib, which is some 0·17 in. thick, is only prominent along some four-fifths of the blade and gradually disappears into the base of the latter. From it the metal gradually fines away on either side towards the edges. In the flat, unequal, square-tipped tang are two rivet-holes averaging 0·11 in. in diameter.

Swords or Dirks (*Pls. CXIII, 3; CXVIII, 9; CXX, 17; CXXVIII, 5; CXXXI, 19*).

These long blades, which can be best described as short swords or dirks appeared for the first time in our excavations in the season 1930-1. They are double-edged, and well made and shaped; and are heavy for their size, showing that metal was not stinted in their manufacture, though, curiously enough, two of them were in houses that can hardly have been those of wealthy people. They are in an excellent state of preservation.

[1] *Cf.* a dagger from ancient Gaza, dated by Petrie to about 3,500–3,100 B. C.; *Ancient Egypt*, 1932, II, p. 44, fig. 4.

No. 3 in Pl. CXIII (see also Pl. CXVIII, 9), a long, narrow, copper weapon was found in a hoard of copper and bronze tools and vessels buried beneath the mud floor of a small room (19) in house III of Block 14 and is dated to the Late Ib Period (Pl. X, a, e). The blade and tang measure 15·75 ins. in length, and the greatest thickness is 0·4 in. There are two rivet-holes at the junction of tang and blade. Though in a good state of preservation, the edges are blunt, which together with the bluntness of the tip suggests that this weapon was unfinished. In section the blade is diamond-shaped, and no attempt had been made to hollow the four faces to permit of easy sharpening. The rectangular tang is 0·65 in. wide by 0·28 in. at its thickest part.

No. 9 in Pl. CXIX (see also Pl. CXX, 17) is copper, and 18·5 ins. long by 0·48 in. thick at the junction of blade and tang. It fines down very gradually and evenly towards the not very sharp point. Two rivet-holes, 0·08 in. in diameter and slightly chamfered on both sides, pierce the blade close to the tang. The latter has square cut sides and tapers down gradually from 0·39 in. wide by 0·18 in. thick to an almost pointed tip. A sharp ridge runs down the axis of the blade on both faces, and between this and the edges the metal was slightly incurved, as in a hollow-ground razor. Despite its breadth and length this fine weapon is not so heavy as it looks, for it weighs only 1 lb. 7¾ ozs. (673·312 gms.). Judging from its rather blunt point and general shape, it was probably used for slashing rather than thrusting, whereas our other dirk or sword is more nearly of the rapier type. We have no evidence that either of these weapons was an importation; indeed, it would be difficult to say whence it could have come, for nothing of the kind has yet been found in Elam at this early period and only one example is reported from Sumer, at Telloh, whose blade and hilt measure a trifle over 16½ ins. long.[1] Swords are just as rare in Egypt as in Sumer, and a weapon of very similar shape to our second specimen found in Egypt but of much later date, is regarded as an importation from either Syria or Cyprus.[2]

A sword of sufficiently early date to be compared with our weapon has lately been found by Sir Flinders Petrie at Tell el Ajjūl in southern Palestine.[3] It is copper and nearly as long as our second specimen, but is more tapering in shape so that it has been described as a rapier. This weapon has been dated to the Sixth Dynasty of Egypt. Thus in India, Sumer and Palestine the short sword was used as early as, or before 2,500 B. C.; but to what country its invention should be ascribed, is, at present, very uncertain. In view, however, of the great probability that the sword was derived from the dagger, it might easily have been invented in each of these countries independently.

A broken copper casting, No. 5 in Pl. CXXVIII (see also Pl. CXXXI, 19), 3·2 ins. long by 1·21 ins. wide by 0·22 in. thick, from the level − 21 ft. appears to be the point of an unfinished sword. Care had evidently been taken that the axial centre of the casting should be sufficiently thick to form a mid-rib when the weapon was finally finished with the hammer.

[1] Heuzey, *Découvertes en Chaldée*, vol. I, p. 386, seqq.

[2] Petrie, *Tools and Weapons*, pl. XXXIV, fig. 40.

[3] *Ancient Egypt*, 1931, p. 38, fig. 4.

Razors (*Pls. CXVIII, 7; CXIX, 6 (?); CXXI, 25, 26, 32, 36, 41; CXXV, 35–41; CXXVIII, 9–14; CXXXII, 15–17, 19, 31*).

Quite a number of metal instruments have been found at Mohenjo-daro that appear to be razors of varying shapes, some of which may have been used to remove hair from the body as well as the head. As far as we can judge from the few pieces of statuary, long hair was worn by both male and female; and the men also wore short beards, though from the evidence of two male statue-heads, the upper lip was sometimes shaved, as in ancient Sumer.[1] Certain of the pottery figures suggest that sometimes the head was shaved, except for a long lock of hair, as is often seen among the Indians, both Hindu and Muhammedan, of the present day (Pl. LXXII, 8–10).

Owing to their diverse forms it is convenient to group these razors in types as below :—

(*a*) Double-bladed razors.
(*b*) L-shaped razors.
(*c*) Hook-shaped razors.
(*d*) Simple blades.

Type (*a*) (Pls. CXXI, 25, 32, 36; CXXV, 35–38, 40; CXXVIII, 9–11, 13, 14; CXXXII, 15–17, 19) was evidently by far the most popular shape and all except one are copper. The blades are always very thin and paper-like, and the tangs which are oval in section are not very much thicker. It will be noticed that the two blades of a razor are not the same shape; probably each side had its own purpose. They were roughly cut out of sheet metal and the blades subsequently spread by means of a hammer before being finally trimmed into shape. None of these razors is very large, the biggest that we have found being only 2 ins. across the blade (Pl. CXXVIII, 12). It seems unlikely that they were set in handles, for in the better preserved specimens the metal tang, thin as it is, would suffice for holding blades as light as these.

This type of razor appears to be peculiar to the Indus Valley civilization, and is found at all levels from −19·4 ft. upwards.

No. 37 in Pl. CXXV, from a late level, is a very unusual type in that the two blades were symmetrical. This razor never had a tang and must have been fastened into a split wooden handle. It was cut from very thin sheet metal[2] and had very sharp edges. The nearest approach that I know to this double-axe type of razor is one from Syracuse, though the latter has a tang which our solitary specimen lacks.[3] No. 14 in Pl. CXXVIII, which is, unfortunately, broken, was probably the same shape as No. 10 in that plate.

Type (*b*).—We have only two examples, both from the later levels, one illustrated in No. 7 in Pl. CXVIII (see also Pl. CXXV, 41) and the second in Pl. CXXI, 26. The former is the larger of the two, measuring 3·15 ins. across and 0·09 in. thick. One arm is longer and broader than the other, but as this specimen is badly corroded it is uncertain whether the ends of the arms were edged, as well as the outer margin. This razor had been carefully wrapped up in cloth, of which fragments remained adhering to both faces. The cloth has been proved to be cotton and a report on it will be found in Chapter XVI.

[1] *Mohenjo-daro and the Indus Civilization*, pls. XCVIII, 1–4; XCIX, 4–6.

[2] The sheet was probably cast in the first place and then hammered out.

[3] Petrie, *Tools and Weapons*, pl. LX, fig. 51.

No. 26 in Pl. CXXI is a less perfect specimen, but it also has an edge on its two outer sides.

These two razors, for they can, I think, be nothing else, may have had split wooden handles, though there is no trace of a handle left on either. It would, however, have been quite possible to use them without handles, and I imagine this was actually the case, for the cotton fabric on the blade in Pl. CXXV, 41, adhered to practically the whole of one side, which would hardly have been possible if a handle had been in position when the blade was wrapped up. Any of the material in contact with wood and not metal would have failed to be preserved by the metal salts.

A razor that is not unlike these two specimens in shape is known from Terra di Lavoro in Italy,[1] but, as far as I know, in no other country.

Type (*c*).—The third shape is also rare; we have only found two specimens (Pls. CXXV, 39; CXXVIII, 12), both from the later levels. With its duck or goose-headed handle, this type has quite an Egyptian look about it.[2] The first, No. 41 in Pl. CXXI (see also Pl. CXXV, 39), which is copper, still has a sharp edge at its square end which is unbroken, and is also edged along the outer curve to where it joins the handle. The inner side is, of course, blunt.

No. 12 in Pl. CXXVIII (see also Pl. CXXXII, 31) is also copper; it has a sharp edge at the end and also along the outer curve. Its bird-headed handle is not quite so distinct as in the other example of this type. On one side of this razor was the impression of a cloth of very coarse weave, that was probably cotton.

Type (*d*) (*Pl. CXIX, 1*).—Only one specimen of this type has been unearthed and that from the level −7·5 ft. It might be thought that this razor was really a broken knife, if it were not that very similar razors have been found at Kish.[3] It is made of copper and its edge is at the square cut end, whose corners are slightly rounded. The convex side of this blade appears to have been slightly roughened, possibly to afford a more secure grip.[4]

Doubtful razor (*Pl. CXIX, 6*).—This specimen is possibly a razor, though it might equally well be a broken knife. It has a sharp, straight edge, and is also keen a little way up the sides. The end of the tang is doubled over for a distance of 0·3 in. It was found with the spear seen in Pl. CXVII, 8, and the dagger in Pl. CXXIII, 6.

Saws (*Pls. CXVI, 6; CXVIII, 1; CXIX, 10; CXXI, 40*).

The better preserved of these two saws is No. 6 in Pl. CXVI (see also Pl. CXVIII, 1), which is of copper and 16·6 ins. long. It was found together with a number of other important objects beneath the floor of a small house (Bl. 15, ho. VI, rm. 28) in a group which may be seen in Pl. X, (h). In shape it is not unlike certain saws of the Old Kingdom of Egypt, though it is much wider. It probably had a wooden handle which was secured by three large rivets placed

[1] Petrie, *Tools and Weapons*, pl. LX, fig. 85.

[2] There is also a bird-handled razor of Punic type.

[3] *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, pl. LXI, figs. 22, 23, p. 164-5.

[4] *Ibid*: the same roughing or notching has been noticed in similar razors from Kish, and it is even seen in the old-fashioned razor of to-day.

wide apart for the sake of strength, and evidently enclosed a considerable portion of the blade. Owing to corrosion the teeth are barely perceptible, but enough remains of them to show that they were irregular, in fact, merely rough notches. This saw must have been used for cutting wood, for except for 2·11 ins. from the tip, the edge was set first to one side and then to the other in much the same way as the teeth of the modern saw.[1] In the latter, however, only the teeth are set in this way, whereas in the saw from Mohenjo-daro a part of the blade beyond the teeth is included in this setting. The object of this, of course, was to prevent the blade from binding in a kerf. The setting of the blade was fairly regular and carefully done, despite the irregularity of the teeth, there being an average distance of 0·72 in. between the bends.[2] The actual edge of the saw is 0·05 in. thick; and taking the setting into account the width of the cut would have been altogether 0·15 in., or perhaps a little less, since allowance should be made for the thickness added by corrosion.

No. 10 in Pl. CXIX (see also Pl. CXXI, 40) is a nearly perfect saw of bronze which now is 12·6 ins. long. The teeth are very irregular in shape and the edge very worn, twisted, and bent. There are three large rivet-holes which average 0·12 in. in diameter, two in the blade and one in the tang, drilled from both sides with the result that their edges are slightly bevelled. From the positions of these rivet-holes it is evident that the handle, which was probably of wood, embraced a considerable portion of the blade, as does the handle of the modern saw, whereas in the Egyptian and other ancient saws it just gripped its upper edge. Judging from the better preserved saw described above, this blade probably had a convex edge which repeated sharpening and much use reduced to its present condition.[3] This implement was found with the blade-axe, Pl. CXX, 31.

No saws have as yet been found in Sumer or Elam, as far as I am aware, with which these blades can be compared. The saws of the Sixth to Twelfth Dynasties of Egypt, which have a convex edge and straight back, were narrower.[4] And their handles were thin and unsubstantial.[5] At Knossos, saws of the Egyptian type have been found, but considerably later in date, *i.e.*, M. M. III, b—L. M. I, a.[6] Though no rivet-holes are to be seen in these saws it appears that the handle enclosed more of the blade than in the Egyptian tools, and in this respect they more closely resemble those of Mohenjo-daro. We may perhaps surmise that the Cretan and Indus Valley saws were largely used for cutting green timber, and on that account the handle had to be strongly fastened on to obviate the risk of the blade buckling at this point.

[1] I have in my possession a modern German wood-saw whose edge undulates in exactly the same way, its teeth being too fine to be set in the ordinary manner.

[2] See the photograph of the edge of this blade in pl. CXVIII, 1.

[3] The difficulty of using these saws for hard materials is illustrated in pls. CV, 57 (ivory); CVI 9, 18 (stone); CXI, 86 (shell).

[4] Petrie, *Tools and Weapons*, pl. L, fig. 4.

[5] These saws are shown in tomb paintings as being used for cutting wood into planks; binding was prevented by inserting wedges in the cut. For full particulars see M. Lane in "The Pullsaw" in Egypt, *Ancient Egypt and the East*, 1935, pt. 1, pp. 55—58.

[6] Evans, *Palace of Minos*, II, p. 630, fig. 393 (*d*). There is every reason to believe that the Indus Valley was no less well forested in ancient times than it is now.

Petrie has pointed out that no ancient saw is known until Roman times with set or splayed teeth,[1] and our specimen is, therefore, the oldest of its kind to be found, and, moreover, a very early example at that. The saw appears, prior to M. M. III date on the Minoan signary, and with a handle that may not have been unlike that used at Mohenjo-daro.[2]

Sickle (?) (*Pls. CXXVIII, 7; CXXXI, 14*).

We have as yet found no perfect sickles at Mohenjo-daro; nor is it by any means certain that the blade to be described was actually a sickle, though we are certain about one unearthed prior to 1927.[3] The blade figured in Pl. CXXVIII, 7 (see also Pl. CXXXI, 14) is apparently copper and has a very pronounced mid-rib on one side only, the other side being practically flat. It was unearthed at the level —12·6 ft. The definite edge on the inside of the curve and its blunt outer margin point to this being a portion of a toothless sickle, though it may have been a curved dagger. No examples of curved daggers have, however, been discovered as yet at either Mohenjo-daro or Harappā. The blade has a clean broken end and how much originally there was of it there is no indication.

Fish-hooks (*Pls. CXIV, 6; CXVIII, 11; CXXI, 11, 14, 24; CXXV, 48, 49; CXXVII, 5, 6, 12, 13; CXXXII, 6, 13, 23, 25*).

Quite a number of fish-hooks have been found as far down as 19·4 ft. below datum, a not surprising fact seeing that the river Indus, or a branch of it, must have been close at hand. They are all very similar in shape, the typical hook consisting of a straight shank slightly thinned out and turned over to form an eye at the top, and with the hook itself equipped with a single barb.[4] No attempt seems to have been made to offset the barb as in many of the modern examples; in those cases where this does occur, it appears to be entirely accidental.

These hooks appear to be mostly of copper, but No. 24 in Pl. CXXI and No. 48 in Pl. CXXV contain a small amount of tin. I cannot see that either the copper or bronze hooks were ever cast; they were probably cut from sheet metal and rounded afterwards.

The best preserved specimen is No. 6 in Pl. CXIV (see also Pl. CXVIII, 11), which was found adhering to two wire cones, as seen in the photograph.

The largest (Pls. CXXI, 24; CXXV, 49) which is some 2·9 ins. long has, unfortunately, lost a portion of its shank.

Two hooks (Pls. CXXXII, 6, 13), both from the lower levels still have twisted tightly round their shanks a part of the cord to which they were once tied.[5] As

[1] *Tools and Weapons*, p. 44.

[2] Evans, *Palace of Minos*, I, p. 643, fig. 477.

[3] *Mohenjo-daro and the Indus Civilization*, pl. CXXXVIII, 10, p. 501.

[4] No. 49 in Pl. CXXV would, in modern terminology, be classed as a "Long May", and Nos. 5 and 6 in Pl. CXXVII as "Round Bend, Up-eyed". No. 23 in Pl. CXXXII would be a "Model Perfect". These slight differences between them may, however, be accidental, for a stout fish could easily pull a copper or even a bronze hook out of shape.

[5] The diameter of the thread, which was probably bast, on No. 6 in Pl. CXXXII is 0·05 in. (See Chapter XVI).

no proper fisherman would ever treat his line in such a way, it is permissible to conclude that these hooks were the property of small boys who possibly used them in the pools left by the annual floods.

Hooks of exactly similar pattern have been found in the Swiss Lake dwellings.[1] According to Petrie, barbed hooks appear first in Egypt in the Eighteenth and Nineteenth Dynasties at Gurob.[2] No barbed hooks have been reported from Susa; and a hook of uncertain date unearthed at al 'Ubaid differs somewhat from those of Mohenjo-daro type.[3] Fish-hooks are unknown at Anau, and it therefore seems that, at present, we may regard the specimens from Mohenjo-daro as being the earliest barbed fish-hooks known.

Hooks (*Pls. CV, 16, 24; CXXI, 43; CXXIV, 29, 32; CXXXII, 21*).

Other kinds of metal hooks than the fish-hooks described above are rarely found. They seem not to have been much used; perhaps wooden hooks took their place, metal being considered too expensive for such mundane use as in the kitchen.

Plate CV.—No. 16 (see also Pl. CXXIV, 29) was made from a hammered strip of metal, square in section and varying slightly in thickness, but whether of copper or bronze is not yet settled. Each end is fined down abruptly to a point.

No. 24 was also fashioned from a strip of copper, 0·62 in. wide and 0·12 in. thick, which was fined down towards the tip to a width of 0·29 in. A portion of the wider end of this hook is missing.

No. 21 in Pl. CXXXII was made from a rectangular strip of lead. Owing to its consequent softness, it is difficult to see of what use this hook could have been, but it is noteworthy that a very similar, but slightly shorter hook of the same type was found with it.

The bronze hook, No. 43 in Pl. CXXI (see also Pl. CXXIV, 32) was first of all thought to be an elephant-goad; but I am now assured that it is much too small to have been used for that purpose, though when perfect it may have been very similar in shape to the goads in use in India at the present day.

A portion of the long, flat tang, 0·8 in. wide by 0·25 in. thick is, unfortunately, missing. As there are no rivet-holes, it is possible that a flat piece of wood was placed on either side of this tang and the three parts lashed securely together.[4] The point of the hook is now quite blunt, though it may originally have been sharp. A second fracture behind the curve suggests that something else is missing, which may have been another hook, in which case the object may have been a fish-hook. If the missing piece had been a vertical spike however, we should have had the counterpart of the modern boat-hook.

[1] *Guide to the Antiquities of the Bronze Age*, Brit. Mus. (1920), p. 122, fig. 128.

[2] *Tools and Weapons*, p. 37.

[3] *Hall and Woolley*, al 'Ubaid, pl. XLVIII, p. 210.

[4] This handle may have been long or short, or the tang may have been inserted in a slit cut in the end of a long pole.

Chisels.

Chisels are perhaps more often found at Mohenjo-daro than any other tool, and they are more usually made of copper than of bronze. They vary from a simple round or square rod with a terminal edge to a very carefully made implement with a long, flat tang, the former being the most common. They can be classified conveniently as follows :—

Type (*a*)—Long, rectangular or square in section, and of fairly uniform thickness throughout.

Type (*b*)—Rectangular or square in section, with a flattened tang.

Type (*c*)—Round in section, made from a simple rod.

Type (*d*)—Short, stout chisels ; round, rectangular or square in section.

Type (*e*)—Short, pointed chisels.

Type (*a*) (*Pls. CXIV, 4, 7 ; CXXI, 10, 15, 17, 20-2, 30 ; CXXXIV, 7-21, 25, 26 ; CXXX, 13–15 ; CXXXIII, 2, 8, 20*).—This is by far the commonest type of chisel found. All were roughly fashioned and they vary from 5·2 ins. down to 1·57 ins. in length. The edge is generally abrupt and double-sloped, and is sometimes slightly splayed. The butt is usually square cut and only very rarely burred, which suggests that these tools had wooden handles : for even had the mallet been of wood, a little spreading of the end of the butt would have resulted. Some of the better made chisels of this type appear to have been cast. Round castings, such as No. 19 in Pl. CXXI, would have been equally suitable as square or rectangular ones, for they could easily have been squared on the anvil.

These tools would have been used in wood-work and perhaps for cutting the softer stones, such as steatite. In the latter case, they may also have been used as gravers, the oblique edge of No. 7 in Pl. CXIV certainly points to its being a graver. This tool, which is somewhat irregular in shape, was found with the other objects illustrated in the same plate.

This type of chisel has such a world-wide range that it is unnecessary to compare it in detail with those of other countries.

Type (*b*) (*Pls. CXIV, 2, 3, 5 ; CXV, 12 ; CXVII, 6 ; CXVIII, 13, 14 ; CXXI, 7, 23, 31 ; CXXVI, 2 ; CXXX, 1–4, 6 ; CXXXI, 31 ; CXXXIII, 3–7, 19*).—This type of chisel appears to be peculiar to the Indus Valley culture. The broad, rectangular tang narrows considerably to a double-sloped edge which in some cases shows a considerable amount of splay. It seems that the tang was encased in a wooden handle, but that the latter did not always cover the top of it, so that some of the butts were slightly burred by the hammer or mallet used upon them.

The chisels of this group range from 9·4 ins. (Pl. CXIV, 5) down to 2·85 ins. (Pl. CXXI, 7) in length. Two out of the fifteen have so far been proved by analysis to be bronze, and these two were, moreover, found at very low levels, No. 2 in Pl. CXXVI as deep as 24·4 ft. below datum. On both sides of this broken chisel, of which practically only the tang remains, there are pictographs and numerals which were doubtless inscribed when the tool was first made. The original length of this very fine, substantial tool must have been over 15 ins.

The nearest approach to this type of chisel of which I know is made by two tools from Italy,[1] though the broadening of the tang in the latter examples seems to have been expressly provided to obtain more surface for the blows; it does not extend any distance down the chisel.

No. 5 *in* Pl. CXIV (see also Pl. CXVIII, 13), which is 9·4 ins. long, is the most perfect specimen that we have of this type of chisel. Its rectangular tang is considerably burred, though a second example found with it (Pls. CXIV, 3; CXVIII, 14) shows no sign of splay.

The tool seen in Pl. CXXI, 31, has a rectangular tang, and with one slope of its edge considerably more pronounced than the other it is almost an exact counterpart of the modern tool.

It is perhaps doubtful whether No. 23 in Pl. CXXI should be included in this type, for its flat tang was shortened by being bent over and the two parts squeezed together. This chisel, made from a rectangular strip of copper, 0·2× 0·12 ins. in section, is also peculiar in that it was bound round with cotton-fibre, apparently as far as the edge which is unfortunately missing. I am inclined to think that this was really an engraver's tool that after being shortened by bending was provided with a frictional grip so as to be easily twirled in the fingers in order to use the edge at various angles.

No. 6 in Pl. CXXX had been doubled up anciently, either for re-melting, or to shorten it as in the case just described.

Type (*c*) (*Pls. CXXI, 9; CXXIV, 3; CXXX, 16; CXXXI, 7*).—This is by no means a common type of chisel; we have only two examples to illustrate, both made from stout, copper wire. No. 9 in Pl. CXXI (see also Pl. CXXIV, 3) has a fine double-sloped edge at one end and a point at the other; and No. 16 in Pl. CXXX (see also Pl. CXXXI, 7) is very similar, save that its edge is obliquely cut and it was, therefore, probably used as a graver. Both these tools could have been employed on soft stones as well as on metal or wood.

Type (*d*) (*Pls. CXIX, 11, 12; CXXI, 12, 13, 16; CXXIV, 22, 13; CXXX, 10, 12; CXXXIII, 10*).—These short chisels were probably used for dressing stone and perhaps also in some kinds of metal work. Owing to their substantial nature, they are nearly always well preserved. Whether they were held between the finger or in a handle is at present uncertain, but the burred heads of some of them show definitely that this portion was not always protected from damage.

Of the six chisels of this type illustrated, three are of bronze and the remainder probably copper. They were found at levels ranging from 21·8 ft. to 2·6 ft. below datum.

Perhaps the best example is No. 12 in Pl. CXIX (see also Pl. CXXI, 12), which from its light colour appears to be bronze. Its cutting edge is slightly splayed, and its thickest part, at the butt, is considerably spread by repeated blows. As one would expect, the one-sidedness of the burring shows that this tool was used at an angle.

Another useful bronze chisel, No. 11 in Pl. CXIX, also has the butt burred by hammering, but the spreading is slighter and more equally distributed. This

[1] Petrie, *Tools and Weapons*, pl. XXI, figs. 7 and 8.

tool was evidently cast in a closed mould, as it has a slight ridge on either side. The use of a closed mould for a tool of such simple shape seems, however, to have been an unnecessary refinement.

The edge of No. 16 in Pl. CXXI (see also Pl. CXXIV, 23) is just like that of a modern chisel. This also is bronze.

Type (*e*) (*Pls. CXIX, 13 ; CXXI, 18*).—No. 13 in Pl. CXIX, which is copper, has a point in place of the usual flat edge. Its upper portion, which is rectangular in section, is unfinished and it is evident that this tool was cut from a rod of greater length. A saw was used from all four sides in turn, and the rod was then snapped.[1] A tool of this kind would have been extremely useful in the preliminary dressing of stone, and that a pointed chisel was used on even hard, cherty limestone is amply borne out by the many unfinished stone objects that we have found (Pl. CIV, 20, 24, 27).

Nos. 6 and 8 in Pl. CXXVIII, it should be noted here, are not chisels of this type, but points broken off from long bolts or bars, to be described later in this chapter.

Awls and Reamers (*Pls. CXVI, 4; CXXI, 6, 8; CXXIV, 1, 4, 6; CXXXV 10; CXXX, 5, 7, 17; CXXXI, 1, 3, 5, 8, 11*).

Awls of copper and bronze are frequent finds: cylindrical rods, square or round in section, with a point at one or both ends, the former being the more usual. They vary from 4 ins. down to 1·5 ins. in length and have been found as far down as 20·6 ft. below datum (Pl. CXXXI, 8).

An interesting copper (?) reamer (Pl. CXXIV, 6) fines down to a point at one end, though it still retains the sharp edges and rectangular section of the rod from which it was cut. The point is blunted by much use. A tool of this kind would be very useful for enlarging holes; ample purchase for the fingers is afforded by its comparatively broad end.

Drill (*Pls. CXXXI, 6; CXXXII, 10*).

No. 6 in Pl. CXXXI appears to be a drill. There is an abrupt, secondary point at one end, where a portion of the tool seems at some time to have been broken off. Probably the thick end of this tool was inserted in a wooden handle and it was worked with a bow.

No. 10 in Pl. CXXXII, which is copper or bronze, tapered to a point at one end—but the point is now missing. This tool was found at the level 21·1 ft. below datum.

Kohl-sticks (*Pl. CXXXI, 2, 4, 10*).

As copper and bronze kohl-sticks are not nearly so numerous as one would expect, it is probable that the majority were made of wood. Those found range in length from 4·4 ins. to 5·5 ins. in length. Both ends are slightly rounded, and the examples from Mohenjo-daro resemble in every way the metal kohl-sticks of ancient and modern Egypt and other countries. They occur as plentifully in the later as in the earlier levels. In this book are also illustrated several of

[1] This saw must have been used with an abrasive of some kind, most probably emery. We have, however, found no emery at Mohenjo-daro.

the kohl-jars with which these sticks were used (Pls. LIV, 1, 10; LVI, 4, 7; CXXVIII, 18).

Needle (*Pl. CXXXIII, 2, 4, 9*).

From its length and fineness this is probably a needle made from a thin strip of copper, rectangular in section. Though there is a fine point at one end, the other end is unfortunately missing, so that it is impossible to be quite certain of our identification. That thin strips of copper were sometimes used as needles is proved by the existence of one found in an earlier season;[1] but needles such as these could only have been used to sew garments of the loosest weave. Possibly they were only used for matting. Though we have found many broken wires and fine rods that may once have possessed eyes, it is, unfortunately, impossible to identify them as needles. The dampness and saltiness of the soil inevitably destroys any metal object of exceptional fineness.

Bolts (*Pls. CXXVII, 14; CXXVIII, 6, 8; CXXXI, 24–6; CXXXII, 8*).

The very fine copper bolt illustrated in Pl. CXXVII, 14 (see also Pl. CXXXII, 8) was found in room 75 of house V, Block 9A, at the level 19·1 ft. below datum. It is 25·15 ins. long, and tapers slightly to a blunt point 0·59 in. wide by 0·37 in. thick. The head is slightly bent and measures 0·98×0·92 ins. This bolt appears to have been cast, and, if so, is a very clean bit of work for it does not appear to have been smoothed in any way. Moreover, it seems possible that it was intended to give the point an edge, for otherwise it would not have been tapered. Perhaps this object is unfinished, though the slightly bent head certainly suggests that it had been used. It was found among the fragments of a burnt beam and it was perhaps used to fasten timbers together, for which purpose it would have been well suited. If it was so used, it would seem that metal was fairly cheap in the Intermediate III and II Phases.

As mentioned before, Nos. 6 and 8 in Pl. CXXVIII are merely broken-off points of bolts similar to the one just described; and in Pl. CXXXI, 24–6, are shown other fragments of very similar bolts. No. 26 is bronze and its butt-end clearly shows the marks of a break. All three of these blunt points, indeed, had evidently been broken off from something of greater length. Nos. 24 and 26 were found together with a portion of a carbonized beam in room 11 of house 1, Block 12.

Plumb-bob (*Pls. CVI, 29; CXXV, 50*).

No. 29 in Pl. CVI (see also Pl. CXXV, 50) is a round, lead ball, 1·2 ins. in diameter, with a copper or bronze staple attached. This is undoubtedly a plumb-bob, well made though not exactly round, and it is the first of its kind to be found at Mohenjo-daro.

Scale-pans and Beams (*Pls. CXIV, 10; CXXI, 27, 28; CXXXII, 7, 9, 14*).

No. 10 in Pl. CXIV was originally a flat-edged dish which was subsequently turned into a scale-pan by boring three small holes at regular distances apart in its rim.

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXXXII, 1.

Plate CXXI.—No. 27. Bronze. Diameter 3·26 ins. This object resembles two scale-pans closely adhering together and made of thin metal. The irregular central hole that now runs through both might have been caused by corrosion. These pans may have been suspended in cord slings as there are no traces of holes round their edges, by which they could have been hung up. Found together with other articles in the bronze vessel illustrated in Pl. CXVI. 5.[1]

No. 28. Copper. 2·15 ins. in diameter. 0·33 in. deep inside, and made of metal 0·05 in. thick. The companion pan to this one has not been found. Like No. 27, it has no holes by which it might have been suspended.

No. 7 in Pl. CXXXII is the beam of a pair of scales; it was found with the two pans seen in No. 9 of the same plate. It is 6·2 ins. long and at its thinnest end there are traces of the thread by which one of the pans was supported. The whole equipment was, unfortunately, too badly corroded to be cleaned. Analysis has shown that the metal of the pans did not contain any appreciable amount of tin.

No. 14 in the same plate shows two very shallow scale-pans stuck together by patina. Owing to their extreme fragility these pans have not been cleaned and, in consequence, no suspension holes are to be seen, though they probably exist.

Two copper scale-pans [DK 1137 (AB)], some 2·2 ins. in diameter, were found inside the copper canister seen in Pls. CXVI, 3; CXVIII, 18. They are both thin and very badly corroded. In one there are two holes in the rim whose positions suggest that each of these particular pans was suspended by means of four cords.

What may be a pottery scale-pan (Pl. CV, 40) is described in Chapter XII, and another that is definitely a scale-pan of pottery is illustrated in Pl. CIX, 32.

In view of the great number of weights that have been found at Mohenjo-daro, it is somewhat surprising that so few scales have come to light. Possibly both pans and the beams of scales were commonly made of wood and have, therefore, not survived. The one scale-beam described above, about whose identification we are certain because it was found with its two pans, seems to have been suspended by a cord tied round the centre of the beam, and not to a central pivot of some kind; but owing to its very badly corroded state it is difficult to say how the central string and those of the pans were exactly attached. I fancy that at the more perfect end of the bar traces of a notch are just discernible. The cord-pivot type of balance is very ancient, and it is still in use in India, even by well-to-do shopkeepers. Its simplicity seems to commend itself to the customer, despite the fact that it can easily be falsified.

Mirrors (*Pls. CXIV, 1; CXVIII, 10; CXXX, 25, 26; CXXXII, 24, 26*).

Until 1928 no mirrors had been found at Mohenjo-daro, but we are now able to illustrate three specimens, two of full size and one evidently intended for a child.

[1] It is possible that these two little pans were castanets.

That in Pl. CXIV, 1 (see also Pl. CXVIII, 10) is bronze, slightly oval, and with the edge of the face raised 0·17 in. The back which is quite plain is somewhat irregular. The polish has completely disappeared from the recessed face of the mirror. The handle is rectangular in section with a hole at the end, and it looks as if there had been another hole close to the mirror itself, but, if so, it has been filled up by corrosion.

No. 25 in Pl. CXXX (see also Pl. CXXXII, 24) is also bronze, with a long, flat handle. It, too, is oval, and has a slightly raised edge around its face and a hole at the end of the handle.

No. 26 in Pl. CXXX (see also Pl. CXXXII, 26) is comparatively small and was possibly made for a child. It has not been analyzed, but its colour suggests that it also is of bronze. Like the two larger mirrors, it has a slightly recessed face.

These mirrors were found between the levels 16·5 and 4·8 ft. below datum. All were apparently cast.

The recessing of the faces of all these mirrors was perhaps intended to protect them and to preserve their polish.[1] It is almost certain that the handles were at one time encased with wood and therefore longer than they now are, for these mirrors are very heavy and difficult to hold in their present condition. The slightly pear-shaped form of all three is in noticeable contrast with the round or elliptical mirrors of early Egypt, Sumer and Elam.[2]

A pear-shaped mirror very similar to those from Mohenjo-daro, found in an undisturbed Egyptian tomb of the First Dynasty, has puzzled Sir Flinders Petrie for that shape, he states, has not been found elsewhere in Egypt before the Eighteenth Dynasty. He suggests that this pyriform mirror came from some distant centre—probably Asiatic.[3] The example that he illustrates differs slightly from the mirrors of Mohenjo-daro in the length and set of the tang, and it can, therefore, hardly be suspected to be an importation into Egypt from India; but the shape could quite well be Asiatic, as a mirror somewhat similar to the pyriform type has been found in a Syrian tomb.[4] The difference between the mirrors of Mohenjo-daro and those of other ancient cultures is that only the recessed face was polished, whereas both sides of other ancient mirrors were so treated, even if one of them was engraved.

Metal mirrors, I understand, are still in use in India to-day; certain orthodox Hindus prefer them to glass mirrors for their religious ceremonies.[5] [6]

[1] Garland illustrates a mirror from Egypt which was recessed on both sides to a depth of about 1/16 of an inch at the centre, and suggests that some kind of mechanical polishing was done with a revolving bob. *Ancient Egyptian Metallurgy*, pp. 71, 72, fig. 35. The faces of the mirrors from Mohenjo-daro are, however, plane, with the exception of their edges.

[2] For round, handle-less mirrors from Elam, dated to the First Period of Susa, see *Mém. Dél. en Perse*, t. XIII, pl. XXIII, figs. 9 and 10. For round, handled mirrors of a slightly later date, see R. de. Mecquenem in *Antiquity*, 1931, p. 337. Examples from Kish, found by M. Watelin, are to be seen in the *Illust. Lon. News*, Aug. 31st, 1929, p. 374.

[3] *Objects of Daily Use*, pp. 28, 29.

[4] Petrie, *Ancient Egypt*, 1917, p. 40.

[5] Mitra, *Antiquities of Orissa*, vol. I, p. 100.

[6] Metal mirrors were frequently used in magical ceremonies in ancient China, and I am told that they are still in use in the remoter parts of that country.

Spatulæ (*Pls. CXXI, 33; CXXX, 11; CXXXIII, 18*).

No. 11 in Pl. CXXX (see Pl. CXXXIII, 18) has the very thin blade of a spatula, only some 0·04 in. thick, though otherwise it resembles a chisel. The tang is a little thicker than the blade and thins towards its end.

I am inclined to think that the curious object seen in Pl. CXXI, 33, is a worn-down counterpart of No. 37 in the same plate; but, if so, it lacks the hole that is always found in implements of that type. It has the same slightly upturned back, from which it fines down gradually to a very sharp but now uneven edge. An instrument such as this would be exceedingly useful to remove paints or cosmetics from a palette, which I have already suggested, was the purpose of No. 37. Constant use would inevitably have led to the edge becoming uneven, though it would still remain sharp.

Miscellaneous objects (*Pls. CV, 50; CXXI, 29, 35, 38, 39; CXXIV, 24, 27, 30, 31; CXXXII, 18, 20*).

No. 29 in Pl. CXXI is bronze, according to its colour. It is only 0·89 in. long and pierced right through by a hole, 0·11 in. in diameter. It may have been an ornament of some kind: its shape seems to preclude its being a bead.

Nos. 35, 38 and 39 in Pl. CXXI and Nos. 27, 30 and 31 in Pl. CXXIV are described in Chapter XV on the Personal Ornaments.

No. 50 in Pl. CV (see also Pl. CXXIV, 24) is a flat piece of copper with its ends fretted as seen in the illustration. It was probably a piece of inlay; no other use for it comes to mind.

No. 18 in Pl. CXXXII is a conical piece of copper sheeting whose edges only meet for a short distance from the point. It may have been the butt-end of a spear-shaft, though it evidently did not fit very well.

No. 20 in the same plate is a curved tube of copper made of thin sheet-metal, rolled so that its edges overlap considerably. Its shape suggests that it formed part of the horn of a statue of a bull.

Below are given full analyses of some of the copper or bronze objects by Dr. Hamid. Partial analyses have also been made by Khan Bahadur Muhd. Sana Ullah, Archæological Chemist in India, and Dr. Hamid to ascertain the tin content of many other copper and bronze objects.[1]

Field and Plate Nos.	Copper. %	Tin. %	Antimony. %	Arsenic. %	Lead. %	Iron. %	Nickel. %	Sulphur. %	Total.
Dk. 5360 (Pls. CXXVIII, 15; CXXXII, 11).	81·94	0·37	0·18	0·80	0·05	0·33	0·21	0·14	84·02
Dk. 7343 (Pls. CXXVII, 14; CXXXII, 8).	97·23	0·00	0·00	0·24	0·81	0·29	0·89	0·10	99·56
Dk. 7853 (Pls. CXXVI, 4; CXXXI, 34).	94·64	0·31	0·06	0·40	0·71	0·28	0·33	0·69	97·42
Dk. 7859 (Pl. CXXXI, 32).	95·23	0·00	0·00	0·24	0·82	0·56	0·41	0·48	97·74

[1] For other analyses of metals, see Chapter XVI.

Field and Plate Nos.	Copper. %	Tin. %	Antimony. %	Arsenic. %	Lead. %	Iron. %	Nickel. %	Sulphur. %	Total.
Dk. 7535 (Pls. CXXVI, 5; CXXXI, 35).	91·01	6·14	0·25	0·66	0·59	0·33	0·48	0·12	99·58
Dk. 7854 (Pls. CXXVII, 2; CXXXI, 37).	90·18	7·66	0·43	0·00	0·95	0·50	0·20	0·07	99·99
Dk. 7856 (Pls. CXXVI, 2; CXXXI, 31).	75·25	7·84	1·25	0·00	0·39	0·51	0·61	0·00	85·85
Dk. 7861 (Portion of axe).	88·49	9·88	0·14	0·00	0·22	0·10	0·30	0·06	99·19
Dk. 5486 (Pls. CXXVIII, 1; CXXXI, 22).	80·56	1·76	tr.	2·10	0·20	0·34	0·58	0·00	85·54
Dk. 6043 (Pl. CXXXIII, 4).	86·92	8·56	0·54	1·58	tr.	0·02	0·68	0·07	98·35

The piece of silver (DK 6129) in Pl. CXXXII, 32, from the level – 16·8 ft. has yielded the following substances :—

Silver	Lead	Copper	Insolubles (silver chloride, etc.)
94·52	0·42	3·68	0·85

The presence of copper may be due to adulteration.

Professor C. H. Desch, F.R.S., and Mr. E. S. Carey of the University of Sheffield, who for some considerable time have been conducting investigations into the ancient metals from various countries for the Sumer Committee of the British Association, have analyzed a great number of samples of copper from our exploratory deep digging in Block 7 of the DK Area which were all submitted in the corroded state as found. Their results are given below. The balance in every item on the list represents copper.

Field No.	Level in feet below datum.	Tin. %	Lead. %	Iron. %	Nickel. %
DK 9366	23·54	4·9	6·3	1·1	tr.
,, 9368	22·88	..	..	tr.	tr.
,, 9376	24·17	..	tr.	tr.	tr.
,, 9392	23·72	13·7	..	tr.	tr.
,, 9421	22·92	..	tr.	tr.	tr.
,, 9442	24·34	22·1	14·9	tr.	tr
,, 9446	24·24	..	tr.	tr.	0·96
,, 9457	24·87	..	..	..	0·34
,, 9460	24·65	+	..	..	..
,, 9472	25·12	+	..	..	..

Field No.	Level in feet below datum.	Tin. %	Lead. %	Iron. %	Nickel. %
DK 9474	25·54	..	tr.	1·08	tr.
„ 9476	24·41	..	tr.	tr.	..
„ 9477	24·85	tr.	tr.	1·4	tr.
„ 9478	24·85	tr.	tr.	tr.	..
„ 9483	24·40	+	..	..	..
„ 9497	26·21	15·0	1·37	0·76	tr.
„ 9503	25·00	+	..	..	..
„ 9509	26·19	..	tr.	0·7	0·4
„ 9514	25·72	12·3	3·0	1·4	tr.
„ 9531	26·25	3·3	3·6	tr.	tr.
„ 9548	26·99	11·5	tr.	tr.	tr.
„ 9549	26·25	1·2	tr.	4·1	1·9
„ 9555	26·12	..	tr.	2·2	0·6
„ 9562	26·58	..	tr.	tr.	tr.
„ 9567	26·87	26·9	tr.	„	..
„ 9583	26·41	tr.	..	„	tr.
„ 9597	28·00	+	..	„	..
„ 9617	27·78	tr.	tr.	„	tr.
„ 9620	26·48	..	tr.	„	tr.
„ 9666	29·07	+	..	„	..
„ 9676	29·02	+	..	„	..
„ 9682	30·52	0·6	..	„	..
„ 9714	30·51	+	..	„	..
„ 9715	30·38	tr.	tr.	„	0·37
„ 9722	30·48	22·2	0·86	„	0·75
„ 9728	30·23	tr.	tr.	„	0·25

Field No.	Level in feet below datum.	Tin. %	Lead. %	Iron. %	Nickel. %
DK 9734	30·49	..	tr.	tr.	tr.
„ 9740	30·60	12·0	tr.	„	0·23
„ 9742	30·16	+	..	„	..
„ 9744	30·16	+	..	„	..
„ 9765	31·64	+	..	„	..
„ 9767	31·85	+	..	„	..
„ 9770	32·20	0·70	..	„	tr.
„ 9784	32·11	..	..	„	..
„ 9789	31·89	+	..	„	..
„ 9808	33·03	tr.	..	„	0·82
„ 9825	33·40	8·3	tr.	„	0·48
„ 9828	32·88	+	..	„	..

Professor Desch remarks.—"The specimens in the second section of the Table were received at a later date. None of these contained more than traces of iron. A plus mark (+) indicates that the element in question was present but that the quantity of material was too small for an analysis. It will be seen that both bronze and copper specimens are found at all levels."

TABULATION OF METAL OBJECTS (UPPER LEVELS).

Plate.	No	Type.	Copper.	Bronze.	Dimensions in inches.						Locus.			Level in feet.	Field No.
					Length.	Width.	Thickness of Tang.	Thickness of Blade.	Height.	Diameter.	Block.	House.	Room.		
LXXI	33	Spear-head	—	×	15·3	4·8	—	0·15	—	—	6	—	23	+0·1	SD 3304
CV	24	Hook	×	—	1·8	0 62	—	0·12	—	—	1	IV	24	−9·3	DK 5022
XIII	1	Axe	×	—	7·5	4 57	—	0·43	—	—	14	III	19	−4·8	„ 10781 (*i*)
„	2	Do.	×	—	7·9	5·12	—	0 43	—	—	14	„	19	−4·8	„ 10781 (*j*)
„	3	Sword	×	—	15·75	1·32	—	0·4	—	—	14	„	19	−4·8	„ 10781 (*f*)
„	4	Axe	×	—	7·8	2·55	—	0·3	—	—	14	„	19	−4·8	„ 10781 (*k*)
„	5	Do.	×	—	7·1	1 9	—	0·22	—	—	14	„	19	−4·8	„ 10781 (*ah*)
„	6	Knife	×	—	7·3	1·61	—	0 11	—	—	14	„	19	−4·8	„ 10781 (*q*)

Tabulation of Metal Objects (Upper Levels).

Plate.	No.	Type.	Copper.	Bronze.	Dimensions in inches. Length.	Width.	Thickness of Tang.	Thickness of Blade.	Height.	Diameter.	Locus. Block.	House.	Room.	Level in feet.	Field No.
CXIII	7	Spear-head	×	—	8·4	2·48	—	0·12	—	—	14	III	19	−4·8	DK 10781 (y)
,,	8	Pan	×	—	—	—	—	—	1·67	11·75	14	,,	19	−4·8	,, 10781 (a)
,,	9	Dish	×	—	—	—	—	—	0·4	2·78	14	,,	19	−4·8	,, 10781 (aa)
XIV	1	Mirror	—	×	10·5	5·94	—	0·4	—	—	14	,,	19	−4·8	,, 10781 (g)
,,	2	Chisel	×	—	5·0	0·3	—	0·13	—	—	14	,,	19	−4·8	,, 10781 (o)
,,	3	Do.	×	—	6·1	0·65	—	0·2	—	—	14	,,	19	−4·8	,, 10781 (m)
,,	4	Do.	×	—	4·35	—	—	—	—	0·21	14	,,	19	−4·8	,, 10781 (n)
,,	5	Do.	×	—	9·4	0·8	—	0·4	—	—	14	,,	19	−4·8	,, 10781 (l)
,,	6	Fish-hook	—	?	1·9	—	—	—	—	0·18	14	,,	19	−4·8	,, 10781 (x)
,,	7	Chisel	×	—	3·7	0·64	—	0·12	—	—	14	,,	19	−4·8	,, 10781 (u)
,,	8	Vase	×	—	—	—	—	—	5·83	5·7	14	,,	19	−4·8	,, 10781 (z)
,,	9	Shell-ball	—	—	—	—	—	—	—	1·18	14	,,	19	−4·8	,, 10781 (f)
,,	10	Scale-pan	×	—	—	—	—	—	0·8	8·3	14	,,	19	−4·8	,, 10781 (h)
,,	11	Pan	×	—	—	—	—	—	1·27	9·1	14	,,	19	−4·8	,, 10781 (ag)
,,	12	Vase	—	×	—	—	—	—	4·5	1·95	14	,,	19	−4·8	,, 10781 (c)
,,	13	Pan	×	—	—	—	—	—	1·58	10·75	14	,,	19	−4·8	,, 10781 (af)
,,	14	Vase	—	×	—	—	—	—	6·8	3·77	14	,,	19	−4·8	,, 10781 (b)
CXV	1	Do.	—	×	—	—	—	—	3·3	4·0	14	,,	19	−4·8	,, 10781 (d)
,,	2	Do.	—	×	—	—	—	—	3·3	4·0	14	,,	19	−4·8	,, 10781 (ad)
,,	3	Do.	×	—	—	—	—	—	2·6	2·65	14	,,	19	−4·8	,, 10781 (ab)
,,	4	Bangle	×	—	2·98	2·53	—	—	—	0·36	14	,,	19	−4·8	,, 10781 (s)
,,	5	Vase	×	—	—	—	—	—	4·39	4·55	14	,,	19	−4·8	,, 10781 (r)
,,	6	Do.	×	—	—	—	—	—	2·72	2·85	14	,,	19	−4·8	,, 10781 (ae)
,,	7	Do.	—	×	—	—	—	—	1·4	1·51	14	,,	19	−4·8	,, 10781 (b)
,,	8	Do.	—	×	—	—	—	—	2·18	1·8	14	,,	19	−4·8	,, 10781 (y)
,,	9	Do.	×	—	—	—	—	—	4·9	4·2	14	,,	19	−4·8	,, 10781 (e)
,,	10	Pan	×	—	—	—	—	—	1·36	9·55	15	VI	28	−5·7	,, 11232 (B)
,,	11	Knife	×	—	4·12	1·43	—	0·09	—	—	15	,,	28	−5·7	,, 11232 (C)
,,	12	Chisel	×	—	7·08	0·69	—	0·32	—	—	15	,,	28	−5·7	,, 11232 (F)
,,	13	Stone weight	—	—	3·88	—	—	—	—	1·2	15	,,	28	−5·7	,, 11232 (D)
,,	14	Axe	×	—	6·93	4·1	—	0·33	—	—	15	,,	28	−5·7	,, 11232 (G)
,,	15	Stone weight	—	—	2·25	—	—	—	—	0·9	15	,,	28	−5·7	,, 11232 (E)
,,	16	Vase	×	—	—	—	—	—	5·85	9·95	15	,,	28	−5·7	,, 11232 (A)
,,	17	Do.	×	—	—	—	—	—	1·88	2·3	15	,,	28	−5·7	,, 11232 (H)
CXVI	1	Do.	×	—	—	—	—	—	1·41	1·9	15	,,	28	−5·7	,, 11337 (Z)
,,	2	Stone tumbler	—	—	—	—	—	—	4·2	2·82	15	,,	28	−7·1	,, 11337 (E)
,,	3	Canister	×	—	—	—	—	—	5·05	4·9	15	,,	28	−7·1	,, 11337 (C)
,,	4	Awl	×	—	3·78	0·12	—	0·12	—	—	15	,,	28	−7·1	,, 11337 (V)

TABULATION OF METAL OBJECTS (UPPER LEVELS).

Plate.	No.	Type.	Copper.	Bronze.	Dimensions in inches.						Locus.			Level in feet.	Field No.
					Length.	Width.	Thickness of Tang.	Thickness of Blade.	Height.	Diameter.	Block.	House.	Room.		
CXVI	5	Vase . .	—	×	—	—	—	—	6·98	8·75	15	VI	28	−7·1	DK 11337 (B)
„	6	Saw . .	×	—	16·6	4·48	—	0·13	—	—	15	„	28	−7·1	„ 11337 (A)
„	7	Vase . .	×	—	—	—	—	—	7·4	10·0	15	„	28	−7·1	„ 11337 (D)
CXVII	1	Axe . .	—	×	5·1	3·25	—	0·25	—	—	15	„	28	−7·1	„ 11337 (W)
„	2	Do. . .	—	×	2·45	2·0	—	0·19	—	—	15	„	28	−7·1	„ 11337 (X)
„	3	Do. . .	—	×	6·35	2·0	—	0·17	—	—	15	„	28	−7·1	„ 11337 (W)
„	4	Pan . .	—	×	—	—	—	—	1·7	10·0	15	„	28	−7·1	„ 11337 (B)
„	5	Lance-head .	×	—	3·33	1·6	—	0·09	—	—	1	III	1	−6·9	„ 3415
„	6	Chisel . .	×	—	6·73	0·41	—	0·11	—	—	8	„	25	−6·3	„ 11871
„	7	Lance-head .	×	—	3·05	1·0	—	0·1	—	—	7	II	89	−7·2	„ 3561
„	8	Spear-head .	×	—	10	3	—	0·13	—	—	9	VI	36	−6·6	„ 3531 (a)
„	9	Knife . .	×	—	5·25	2·52	—	0·12	—	—	21	III	21	−8·8	„ 11209
„	10	Lance-head .	×	—	3·6	1·55	—	0·07	—	—	1	„	1	−10·1	„ 4549
„	11	Spear-head .	×	—	9·1	2·85	—	0·06	—	—	9	IX	67	−12·2	„ 12865
CXVIII	1	Saw . .	×	—	16·6	4·48	—	0·13	—	—	15	VI	28	−7·1	„ 11337 (A)
„	2	Axe . .	×	—	7·8	2·55	—	0·3	—	—	14	III	19	−4·8	„ 10781 (k)
„	3	Do. . .	×	—	69·3	4·1	—	0·33	—	—	15	VI	28	−5·7	„ 11232 (G)
„	4	Do. . .	×	—	7·5	4·57	—	0·43	—	—	14	III	19	−4·8	„ 10781 (i)
„	5	Do. . .	×	—	7·9	5·12	—	0·43	—	—	14	„	19	−4·8	„ 10781 (j)
„	6	Vase . .	—	×	—	—	—	—	6·8	3·77	14	„	19	−4·8	„ 10781 (b)
„	7	Razor . .	×	—	2·5	2·23	—	0·09	—	—	13	„	19	−9·0	„ 11985
„	8	Stone tumbler	—	—	—	—	—	—	4·2	2·82	15	VI	28	−7·1	„ 11337 (E)
„	9	Sword . .	×	—	15·75	1·32	—	0·4	—	—	14	III	19	−4·8	„ 10781 (f)
„	10	Mirror . .	—	×	10·5	5·94	—	0·4	—	—	14	„	19	−4·8	„ 10781 (g)
„	11a	Cones . .	×	—	—	—	—	—	3·7	0·82	14	„	19	−4·8	„ 10781 (w)
„	11b	Fish-hook .	—	?	1·9	—	—	—	—	0·18	14	„	19	−4·8	„ 10781 (x)
„	12	Vase . .	×	—	—	—	—	—	1·88	2·3	15	VI	28	−5·7	„ 11232 (H)
„	13	Chisel . .	×	—	9·4	0·8	0·4	—	—	—	14	III	19	−4·8	„ 10781 (l)
„	14	Do. . .	×	—	6·1	0·65	—	0·2	—	—	14	„	19	−4·8	„ 10781 (m)
„	15	Shell-ball .	—	—	—	—	—	—	—	1·18	14	„	19	−4·8	„ 10781 (t)
„	16	Vase . .	—	×	—	—	—	—	4·5	1·95	14	„	19	−4·8	„ 10781 (c)
„	17	Do. . .	×	—	—	—	—	—	2·72	2·85	14	„	19	−4·8	„ 10781 (ae)
„	18	Canister . .	×	—	—	—	—	—	5·05	4·9	15	VI	28	−7·1	„ 11337 (C)
„	19	Vase . .	×	—	—	—	—	—	5·83	5·7	14	III	19	−4·8	„ 10781 (z)
„	20	Pan . .	×	—	—	—	—	—	1·67	11·75	14	„	19	−4·8	„ 10781 (a)
„	21	Vase . .	×	—	—	—	—	—	4·39	4·55	14	„	19	−4·8	„ 10781 (r)
„	22	Do. . .	×	—	—	—	—	—	9·2	10·2	15	V	22	−3·1	„ 10176
„	23	Do. . .	×	—	—	—	—	—	5·85	9·95	15	VI	28	−5·7	„ 11232 (A)
„	24a	Do. . .	—	×	—	—	—	—	6·98	8·75	15	„	28	−7·1	„ 11337 (B)

TABULATION OF METAL OBJECTS (UPPER LEVELS).

Plate.	No.	Type.	Copper.	Bronze.	Dimensions in inches.						Locus.			Level in feet.	Field No.
					Length.	Width.	Thickness of Tang.	Thickness of Blade.	Height.	Diameter.	Block.	House.	Room.		
CXVIII	24b	Dish . .	—	—	—	—	—	—	1·7	0·10	15	VI	28	−7·1	DK 11337(*B*)
CXIX	1	Razor . .	×	—	3·7	1·3	—	0·15	—	—	7	II	89	−7·5	„ 3610
„	2	Knife . .	?	—	2·76	0·87	—	0·11	—	—	8	I	7	−1·8	„ 3346
„	3	Do. . .	×	—	3·5	0·73	—	0·07	—	—	9	III	29	−1·8	„ 3394
„	4	Knife or Dagger	×	—	4·38	0·96	—	0·12	—	—	9A	VIII	46	−7·8	„ 12744
„	5	Knife . .	×	—	4·2	1·56	—	0·11	—	—	3	VI	29	−10·6	„ 3970
„	6	Razor (?) .	×	—	2·55	1·25	—	0·1	—	—	9	„	36	−6·6	„ 3548
„	7	Knife . .	—	?	2·84	0·7	—	0·08	—	—	6	III	14	−11·5	„ 4568
„	8	Do. . .	×	—	3·65	1·5	—	0·08	—	—	9	„	30	−4·9	„ 3511
„	9	Sword . .	×	—	18·5	2·39	—	0·48	—	—	9A	VIII	58	−5·5	„ 12682
„	10	Saw . .	—	×	12·6	3·1	—	0·16	—	—	6A	—	33	−8·3	„ 10968
„	11	Chisel . .	—	×	2·16	0·55	—	0·23	—	—	15	I	8	−6·2	„ 11227
„	12	Do. . .	—	×	1·65	0·65	—	0·33	—	—	21	IV	23	−2·6	„ 10158
„	13	Do. . .	×	—	2·8	0·45	—	0·36	—	—	4	—	15	−10·2	„ 5369
CXX	1	Dagger . .	×	—	10·8	2·4	—	0·11	—	—	18	—	21	−8·5	„ 12517
„	2	Do. . .	×	—	8·42	1·8	—	0·13	—	—	7	IV	70	−7·5	„ 3470
„	3	Do. . .	—	?	13·35	2·35	—	0·2	—	—	1	I	10	−7·1	„ 4467
„	4	Knife . .	×	—	6·31	2·03	—	0·12	—	—	8A	—	45	−5·3	„ 13001
„	5	Do. . .	—	×	6·6	2·3	—	0·07	—	—	9	X	80	−11·0	„ 12905
„	6	Lance-head .	×	—	3·65	1·0	—	0·1	—	—	7	II	89	−7·2	„ 3561
„	7	Spear-head .	×	—	6·2	2·38	—	0·08	—	—	18	—	7	−8·5	„ 12296
„	8	Knife . .	×	—	3·2	0·4	—	0·03	—	—	18	—	55	−3·4	„ 10187
„	9	Spear-head .	×	—	9·1	2·85	—	0·06	—	—	9	IX	67	−12·2	„ 12865
„	10	Knife . .	×	—	6·64	2·76	—	0·12	—	—	9	XII	92	−3·8	„ 10305
„	11	Do. . .	×	—	4·9	1·47	—	0·12	—	—	East of Bl. 1 (I)			−11·1	„ 7363
„	12	Do. . .	×	—	4·19	0·6	—	0 1	—	—	8	III	28	−9·2	„ 12515
„	13	Do. .	?	—	3·25	1·09	—	0·12	—	—	West St. (15)			−3·1	„ 10096
„	14	Do. . .	×	—	2·4	—	—	0·08	—	—	8A	—	45	−8·7	„ 7933
„	15	Knife or Dagger	×	—	4·38	0·96	—	0·12	—	—	9A	VIII	46	−7·8	„ 12744
„	16	Knife . .	×	—	3·65	1·5	—	0 08	—	—	9	III	30	−4·9	„ 3511
„	17	Sword . .	×	—	18·5	2·39	—	0·48	—	—	9A	VIII	58	−5·5	„ 12682
„	18	Dagger . .	—	×	9·9	1·5	—	0·17	—	—	1	V	47	−9·2	„ 5212
„	19	Do. . .	—	×	11·5	1·65	—	0·2	—	—	9	VI	36	−6·6	„ 3531
„	20	Knife . .	×	—	5·25	2·52	—	0·12	—	—	21	III	21	−8·8	„ 11209
„	21	Knife or Dagger	×	—	5·1	1·82	—	0·15	—	—	9A	V	67	−11·3	„ 12892
„	22	Knife . .	×	—	7·9	2·2	—	0·2	—	—	9	VII	17	−9·6	„ 4450
„	23	Do. . .	×	—	3·33	1·31	—	0·19	—	—	2	I	6	−8·1	„ 4430
„	24	Do. . .	—	?	3·2	0·75	—	0·07	—	—	9	VIII	10	−6·7	„ 7992
„	25	Do. . .	×	—	3·32	0·43	—	0·09	—	—	9	VI	36	−11·5	„ 8061

TABULATION OF METAL OBJECTS (UPPER LEVELS).

Plate.	No.	Type.	Copper.	Bronze.	Dimensions in inches.						Locus.			Level in feet.	Field No.
					Length.	Width.	Thickness of Tang.	Thickness of Blade.	Height	Diameter.	Block.	House.	Room.		
CXX	26	Axe . .	—	×	5·5	1·67	—	0·20	—	—	9	VI	36	−5·8	DK 3578
„	27	Axe-adze .	—	×	10·5	2·28	—	—	2·4	—	Bet. Bls. 7 (I) & 10			−6·0	„ 4541
„	28	Axe . .	?	—	6·85	2·17	—	0·2	—	—	7	IV	70	−7·5	„ 3469
„	29	Do. . .	×	—	9·9	2·24	—	0·23	—	—	12A	II	22	−8·6	„ 7091
„	30	Do. . .	—	×	7·8	2·25	—	0·21	—	—	7	IV	70	−7·5	„ 3468
„	31	Do. . .	?	—	4·9	3·45	—	0·35	—	—	6A	—	33	−8·3	„ 10970
CXXI	1	Arrow-head .	×	—	1·31	0·58	—	0·1	—	—	6	I	1	−8·1	„ 4186
„	2	Do. . .	×	—	1·4	0·65	—	0·05	—	—	Bet. Bls 4 and 7			−5·6	„ 3318
„	3	Do. . .	×	—	1·12	0·6	—	0·05	—	—	6	III	25	−9·2	„ 4288
„	4	Do. . .	×	—	1·5	0·75	—	0·07	—	—	2	I	8	−9·3	„ 4265
„	5	Do. . .	×	—	1·25	—	—	0·1	—	—	Bet. Bls. 7 and 8			−8·5	„ 4175
„	6	Awl . .	×	—	3·92	—	—	—	—	0·2	1	I	15	−9·4	„ 4503
„	7	Chisel . .	×	—	2·85	0·18	—	0·13	—	—	9	VII	17	−11·5	„ 5094
„	8	Awl . .	×	—	4·0	—	—	—	—	0·25	10	IV	72	−7·8	„ 5101
„	9	Chisel . .	×	—	4·1	—	—	—	—	0·2	1	I	18	−8·1	„ 4490
„	10	Do. . .	×	—	3·2	0·25	—	0·15	—	—	9A	V	80	−9·1	„ 5508
„	11	Fish-hook .	×	—	1·25	—	—	—	—	0·18	7	VI	61	−6·7	„ 4140
„	12	Chisel . .	—	×	1·65	0·65	—	0·33	—	—	21	IV	23	−2·6	„ 10158
„	13	Do. . .	—	×	1·58	0·28	—	0·28	—	—	9	VI	36	−5·8	„ 3507
„	14	Fish-hook .	×	—	1·85	—	—	—	—	0·2	8	III	30	−8·4	„ 11923
„	15	Chisel . .	×	—	2·7	0·45	—	0·15	—	—	8	V	9	−7·1	„ 3713
„	16	Do. . .	—	×	1·32	0·25	—	0·25	—	—	7	III	52	−6·6	„ 3524
„	17	Do. . .	×	—	4·2	0·19	—	0·19	—	—	1	V	43	−6·4	„ 4820
„	18	Do. . .	×	—	1·15	0·25	—	0·25	—	—	18	—	72	−8·0	„ 11219
„	19	Ingot . .	—	×	2·9	—	—	—	—	0·35	25	I	9	−9·0	„ 11283
„	20	Chisel . .	×	—	2·42	0·2	—	0·12	—	—	1	„	10	−10·3	„ 4579
„	21	Do. . .	×	—	1·75	0·23	—	0·17	—	—	First St. (7)			−9·3	„ 3888
„	22	Do . .	×	—	2·9	0·25	—	0·19	—	—	7	VIII	16	−8·0	„ 3586
„	23	Do. . .	×	—	3·4	0·2	—	0·12	—	—	12	V	90	−8·6	„ 4757
„	24	Fish-hook .	—	×	2·9	—	—	—	—	0·19	8A	—	41	−4·2	„ 11156
„	25	Razor . .	×	—	2·0	1·9	—	0·05	—	—	18	—	2	−6·5	„ 10967
„	26	Do. . .	×	—	2·1	—	—	0·09	—	—	25	I	10	−8·1	„ 11475
„	27	Scale-pans (?) .	—	×	—	—	—	—	—	3·26	15	VI	28	−7·1	„ 11337 (AA)
„	28	Do. . .	×	—	—	—	—	—	0·33	2·15	6A	—	40	−8·9	„ 12384
„	29	Ornament .	—	×	0·89	—	—	—	—	0·49	Bet.Bls. 2 and 3			−4·7	„ 8035
„	30	Chisel . .	×	—	5·1	0·22	—	0·22	—	—	9	X	86	−8·4	„ 12420
„	31	Do. . .	×	—	6·73	0·41	—	0·2	—	—	8	III	25	−6·3	„ 11871
„	32	Razor . .	×	—	3·07	1·67	—	0·11	—	—	18	—	68	−7·3	„ 11174
„	33	Spatula (?) .	×	—	2·92	0·45	—	0·08	—	—	18	—	38	−5·5	„ 10221

Tabulation of Metal Objects (Upper Levels).

Plate.	No.	Type.	Copper.	Bronze.	Dimensions in inches. Length.	Width.	Thickness of Tang.	Thickness of Blade.	Height.	Diameter.	Locus. Block.	House.	Room.	Level in feet.	Field No.
CXXI	34	Copper-melt .	×	—	—	—	—	—	1·0	3·62	2	IV	15	−11·1	DK 5497
„	35	*Ring* . .	×	—	—	*0·6*	—	—	—	0·55	Bet. Bls. 2 and 3			−5·6	„ 8071
„	36	Razor . .	×	—	2·58	—	—	0·06	—	—	18	—	2	−6·9	„ 11020
„	37	Spoon (?) .	×	—	4·1	1·95	—	—	—	—	8A	—	44	−4·0	„ 10754
„	38	Spacer . .	—	×	2·15	0·39	—	0·11	—	—	26	II	9	−9·1	„ 11679
„	39	Do. . .	—	×	1·85	0·29	—	0·11	—	—	14	IV	30	−2·5	„ 10378
„	40	Saw . .	—	×	12·6	3·1	—	0·16	—	—	6A	—	33	−8·3	„ 10968
„	41	Razor . .	×	—	1·92	2·15	—	0·08	—	—	9	VIII	16	−6·4	„ 8005
„	42	Pan . .	×	—	5·7	2·8	—	—	0·45	—	6A	—	39	−10·3	„ 12372
„	43	Hook . .	—	×	5·4	3·2	0·25	—	—	—	12	I	11	−11·9	„ 6081
CXXII	1	Knife . .	—	×	5·0	2·6		0·08	—	—	8	„	4	−11·6	„ 8876
„	2	Do. . .	×	—	3·65	0·98	—	0·08	—	—	18	—	57	−5·3	„ 11986
„	3	Do. . .	—	?	3·2	0·75	—	0·07	—	—	9	VIII	10	−6·7	„ 7992
„	4	Do. . .	×	—	3·33	1·31	—	0·19	—	—	2	I	6	−8·1	„ 4439
„	5	Do. . .	×	—	7·9	2·2	—	0·2	—	—	9	VII	17	−9·6	„ 4450
„	6	Dish . .	×	—	—	—	—	—	0·33	2·15	6A	—	40	−8·9	„ 12384
„	7	Axe . .	—	×	7·8	2·25	—	0·21	—	—	7	IV	70	−7·5	„ 3468
„	8	Do. . .	?	—	6·85	2·17	—	0·2	—	—	7	„	70	−7·5	„ 3469
„	9	Do. . .	—	×	5·5	1·67	—	0·2	—	—	9	VI	36	−5·8	„ 3573
„	10	Pan . .	×	—	5·7	2·8	—	—	0·45	—	6A	—	39	−1·03	„ 12372
„	11	Knife . .	?	—	3·25	1·09	—	0·12	—	—	West St. (15)			−3·1	„ 10096
„	12	Axe-adze .	—	×	10·15	2·28	—	—	2·4	—	Bet. Bls. 7 (X) & 10			−6·0	„ 4541
„	13	Axe	×	—	9·9	2·24	—	0·23	—	—	12A	II	22	−8·6	„ 7091
CXXIII	1	Knife . .	×	—	6·2	2·38	—	0·08	—	—	18	—	9	−8·5	„ 12296
„	2	Dagger . .	×	—	7·4	2·17	—	0·15	—	—	23	I	3	−5·0	„ 11503
„	3	Do. . .	×	—	8·42	1·8	—	0·13	—	—	7	IV	70	−7·5	„ 3470
„	4	Knife . .	×	—	2·72	1·33	—	0·08	—	—	10	„	70	−4·9	„ 4771
„	5	Dagger . .	×	—	10·8	2·4	—	0·11	—	—	18	—	21	−8·5	„ 12517
„	6	Do. .	—	×	11·5	1·65	—	0·2	—	—	9	VI	36	−6·6	„ 3531
„	7	Do. . .	—	×	9·9	1·5	—	0·17	—	—	1	V	47	−9·2	„ 5212
„	8	Do. . .	—	?	13·35	2·35	—	0·2	—	—	1	I	10	−7·1	„ 4467
CXXIV	1	Awl . .	×	—	1·5	—	—	—	—	9·22	Bet. Bls. 7 and 8			−8·4	„ 4305
„	2	Awl (?) . .	—	×	2·5	0·14	—	0·07	—	—	Bet. Bls. 4 and 7			−5·6	„ 3319
„	3	Chisel . .	×	—	4·1	—	—	—	—	0·2	1	I	18	−8·1	„ 4490
„	4	Awl . .	×	—	2·92	—	—	—	—	0·2	1	„	15	−9·4	„ 4503
„	5	Awl (?) . .	×	—	4·0	—	—	—	—	0·25	10	IV	72	−7·3	„ 5101
„	6	Reamer . .	×	—	1·94	0·19	—	0·09	—	—	7	III	45	−4·7	„ 3322

TABULATION OF METAL OBJECTS (UPPER LEVELS).

Plate.	No.	Type.	Copper.	Bronze.	Dimensions in inches.						Locus.			Level in feet.	Field No.
					Length.	Width.	Thickness of Tang.	Thickness of Blade.	Height.	Diameter.	Block.	House.	Room.		
CXXIV	7	Chisel . .	×	—	1·3	0·2	—	0·11	—	—	1	VII	3	-11·9	DK 4623
„	8	Do. . .	×	—	1·57	0·22	—	0·15	—	—	Bet. Bls. 3 and 4			-10·9	„ 4570
„	9	Do. . .	×	—	2·42	0·2	—	0·12	—	—	1	I	10	-10·3	„ 4579
„	10	Do. . .	×	—	2·9	0·25	—	0·19	—	—	7	VIII	16	-8·0	„ 3586
„	11	Do. . .	×	—	3·2	0·25	—	0·15	—	—	9A	V	80	-9·1	„ 5508
„	12	Do. . .	—	×	3·95	0·37	—	0·22	—	—	6	III	16	-8·3	„ 3915
„	13	Do. . .	×	—	3·35	0·3	—	0·2	—	—	3	„	13	-6·9	„ 3796
„	14	Do. . .	×	—	1·75	0·23	—	0·17	—	—	First Street (7)			-9·3	„ 3888
„	15	Do. . .	—	×	2·48	0·23	—	0·13	—	—	Bet. Bls. 1 (III) and 7			-7·0	„ 3378
„	16	Do. . .	×	—	2·98	0·31	—	0·2	—	—	2	II	24	-6·7	„ 4243
„	17	Do. . .	×	—	4·2	0·19	—	0·19	—	—	1	V	49	-6·4	„ 4820
„	18	Do. . .	×	—	2·7	0·45	—	0·15	—	—	3	„	9	-7·1	„ 3713
„	19	Do. . .	×	—	1·32	0·1	0·5	—	—	—	Bet. Bls. 7 and 8			-8·4	„ 4306
„	20	Do. . .	×	—	2·6	0·21	—	0·19	—	—	10		8	-8·3	„ 4795
„	21	Do. . .	—	×	3·23	0·21	—	0·21	—	—	3		31	-10·8	„ 5317
„	22	Do. . .	—	×	1·58	0·28	—	0·28	—	—	9	VI	36	-5·8	„ 3507
„	23	Do. . .	—	×	1·32	0·25	—	0·25	—	—	7	III	52	-6·6	„ 3524
„	24	Inlay (?) .	×	—	2·5	0·65	—	0·09	—	—	2	II	23	-10·6	„ 4322
„	25	Chisel . .	×	—	3·6	0·2	—	0·22	—	—	12	I	11	-11·0	„ 6141
„	26	Do. . .	×	—	2·4	0·28	—	0·28	—	—	6	„	3	-11·1	„ 3664
„	27	Ornament .	×	—	1·95	1·6	—	0·15	—	—	3	V	8	-6·9	„ 4036
„	28	Jar-cover .	×	—	—	—	—	—	1·42	2·65	10	II	26	-8·9	„ 7031
„	29	Hook . .	×	—	3·8	—	—	0·21	—	—	Fore Lane, Bl. 10(IV)			-6·8	„ 5811
„	30	Cone . .	×	—	—	—	—	—	1·55	2·0	2	IV	15	-11·8	„ 5498
„	31	Ring . .	×	—	—	—	—	0·08	—	0·71	9	VII	51	-10·5	„ 5726
„	32	Hook . .	—	×	5·4	3·2	0·25	—	—	—	12	I	11	-11·9	„ 6081
CXXV	35	Razor . .	×	—	2·2	0·7		0·09	—	—	7	„	7	-9·4	„ 8011
„	36	Do. . .	—	×	—	1·4	—	0·08	—	—	8	III	12	-6·9	„ 7946
„	37	Do. . .	?		1·43	0·93	—	0·03	—	—	Dump.				„ 11155
„	38	Do. . .	×	—	1·6	1·55	—	0·06	—	—	26	II	12	-9·7	„ 11380
„	39	Do. . .	×	—	1·92	2·15	—	0·08	—	—	9	VIII	16	-6·4	„ 8005
„	40	Do. . .	×	—	3·07	1·67	—	0·11	—	—	18	—	68	-7·3	„ 11174
„	41	Do. . .	×	—	2·5	2·23	—	0·09	—	—	13	III	19	-9·0	„ 11985
„	42	Arrow-head .	×	—	1·31	0·58	—	0·1	—	—	6	I	1	-8·1	„ 4186
„	43	Do. . .	×	—	1·5	0·75	—	0·07	—	—	2	„	8	-9·3	„ 4265
„	44	Do. . .	×	—	1·25	0·7	—	0·1	—	—	Bet. Bls. 7 and 8			-8·5	„ 4175
„	45	Do. . .	×	—	1·12	0·6	—	0·05	—	—	6	III	25	-9·2	„ 4288
„	46	Do. . .	×	—	1·66	0·85	—	0·09	—	—	6A	—	33	-8·3	„ 10960
„	47	Do. .	×	—	1·32	0·79	—	0·07	—	—	18	—	57	-4·0	„ 11989

Tabulation of Metal Objects (Upper and Lower Levels).

Plate.	No.	Type.	Copper.	Bronze.	Dimensions in inches. Length.	Width.	Thickness of Tang.	Thickness of Blade.	Height.	Diameter.	Locus. Block.	House.	Room.	Level in feet.	Field No.
CXXV	48	Fish hook .	—	×	2·31	—	—	—	—	0·21	25	I	9	−5·2	DK 10568
"	49	Do. .	—	×	2·9	—	—	—	—	0·19	8A	—	41	−4·2	" 11156
"	50	Plumb-bob .	Lead	—	—	—	—	—	—	1·2	26	II	14	−9·6	" 11297

LOWER LEVELS.

Plate.	No.	Type.	Copper.	Bronze.	Length.	Width.	Thickness of Tang.	Thickness of Blade.	Height.	Diameter.	Block.	House.	Room.	Level in feet.	Field No.
CXXVI	1	Spear-head .	×	—	7·3	3·93	—	0·16	—	—	12A	I	15	−24·4	DK 7658
"	2	Chisel . .	—	×	5·22	0·91	0·30	—	—	—	12A	"	15	−24·4	" 7856
"	3	Axe . .	×	—	5·45	2·36	—	0·2	—	—	12A	"	15	−24·4	" 7855
"	4	Do. . .	×	—	10·35	3·85	—	0·4	—	—	12A	"	15	−24·4	" 7853
"	5	Do. . .	—	×	11·15	4·31	—	0·47	—	—	12A	"	15	−24·4	" 7535
CXXVII	1	Spear head (?)	×	—	11·4	3·1	0·13	0·1	—	—	12A	I	15	−24·4	" 7857
"	2	Axe . .	—	×	9·35	4·17	—	0·4	—	—	12A	"	15	−24·4	" 7854
"	3	Knife or Dagger	×	—	9·3	1·57	0·18	0·11	—	—	7	IV	49	−17·4	" 8268
"	4	Knife . .	×	—	7·1	1·63	0·14	0·1	—	—	Bet. Bls. 7 (I) and 10			−15·0	" 6126
"	5	Fish-hook .	×	—	1·04	—	—	—	—	0·15	7	V	66	−17·0	" 8152
"	6	Do. . .	×	—	1·1	—	—	—	—	0·12	2	I	8	−19·4	" 9276
"	7	Arrow-head .	×	—	1·26	0·61	—	0·09	—	—	East of Bl. 9 (VI)			−17·7	" 8009
"	8	Do. . .	×	—	1·48	0·8	—	0·07	—	—	2	I	8	−16·7	" 9212
"	9	Do. . .	×	—	1·4	0·72	—	0·08	—	—	7	IX	29	−17·0	" 8355
"	10	Do. . .	×	—	1·1	0·55	—	0·05	—	—	1	VII	34	−13·1	" 5453
"	11	Do. . .	×	—	1·5	0·61	—	0·08	—	—	Bet. Bls. 10 and 12			−22·1	" 6960
"	12	Fish-hook .	×	—	1·5	—	—	—	—	0·2	East of Bl. 1 (I)			−16·5	" 7375
"	13	Do. . .	×	—	1·75	—	—	—	—	0·13	7	III	48	−14·5	" 8259
"	14	Bolt . .	×	—	25·15	0·62	—	—	—	—	9A	V	75	−19·1	" 7343
CXXVIII	1	Axe . .	—	×	8·2	2·43	—	0·24	—	—	1A	—	87	−15·9	" 5486
"	2	Do. . .	×	—	7·2	1·95	—	0·23	—	—	1A	—	87	−15·9	" 5469
"	3	Do. . .	×	—	4·0	·58	—	0·28	—	—	12	V	97	−15·4	" 5628
"	4	Do. . .	×	—	4	2·[illegible]	—	0·28	—	—	5	I	2	−18·6	" 9130
"	5	Point . .	×	—	3·2	1·21	—	0·22	—	—	12	"	11	−21·0	" 6495
"	6	Do. . .	×	—	3·22	0·58	0·55	0·53	—	—	10	"	5	−18·4	" 8330
"	7	Sickle (?) .	×	—	4·9	0·96	—	0·19	—	—	12	V	96	−12·6	" 6416
"	8	Point . .	×	—	3·32	0·43	—	0·43	—	—	12	I	11	−21·0	" 6505
"	9	Razor . .	×	—	2·15	1·67	—	0·12	—	—	Bet. Bls. 1 and 7			−13·9	" 6628
"	10	Do. . .	×	—	1·7	1·08	—	0·08	—	—	1	III	2	−19·4	" 9054
"	11	Do. . .	×	—	1·65	1·12	—	0·05	—	—	1	VII	36	−16·5	" 9319

Tabulation of Metal Objects (Lower Levels).

Plate.	No.	Type.	Copper.	Bronze.	Dimensions in inches.						Locus.			Level in feet.	Field No.
					Length.	Width.	Thickness of Tang.	Thickness of Blade.	Height.	Diameter.	Block.	House.	Room.		
CXXVIII	12	Razor . .	×	—	2·5	2·0	—	0·11	—	—	First St. (22)			–16·8	DK 8183
,,	13	Do. . .	×	—	2·08	1·5	—	0 09	—	—	9A	V	75	–18·3	,, 7467
,,	14	Do. . .	×	—	1·63	1·5	—	0·12	—	—	First St. (4)			–14·3	,, 4360
,,	15	Pan . .	×	—	9·08	—	—	—	0·7	5·1	1	VII	3	–14·5	,, 5360
,,	16	Vase . .	×	—	—	—	—	—	4·0	2·94	1A	—	91	–19·4	,, 5881
,,	17	Do. . .	×	—	—	—	—	—	3·3	2·88	1	II	6	–14·4	,, 5614
,,	18	Kohl-pot .	—	×	—	—	—	—	3·35	1·26	9	VIII	16	–19·8	,, 7659
,,	19	Vase . .	×	—	—	—	—	—	1·3	1·12	1	V	46	–12·6	,, 6301
,,	20	Do. . .	×	—	—	—	—	—	3·3	2·88	1	II	6	–14·4	,, 5614
,,	21	Lead dish .	—	—	—	—	—	—	0·5	3·17	7	I	3	–22·3	,, 8561
,,	22	Dish . .	×	—	—	—	—	—	0·67	5·23	1A	—	87	–15·9	,, 5468
CXXIX	1	Knife or Dagger.	×	—	7·05	1·39	0·15	0·12	—	—	First St. (22)			–23·2	,, 8559
,,	2	Knife . .	×	—	5·85	1·81	0·15	0·11	—	—	7	IV	47	–17·8	,, 8677
,,	3	Dagger . .	×	—	7·9	2·17	0 12	0·09	—	—	1	,,	30	–14·3	,, 5291
,,	4	Knife or Dagger	×	—	8·18	2·19	0·15	0·13	—	—	3	II	25	–19·0	,, 9305
,,	5	Do. . .	×	—	9·45	1·8	0·15	0·11	—	—	2	I	13	–13·8	,, 4268
,,	6	Knife . .	×	—	5·1	2·7	0·17	0·12	—	—	5	,,	11	–13·6	,, 3829
,,	7	Do. . .	×	—	7·1	1·89	—	0·11	—	—	4	—	8	–19·4	,, 5058
,,	8	Do. . .	×	—	6·1	2·71	0·13	0·1	—	—	1	IV	24	–17·2	,, 6052
,,	9	Do. . .	×	—	5·3	1·92	0 1	0 09	—	—	2	III	42	–17·2	,, 7323
,,	10	Do. . .	×	—	5 6	2·25	0·15	0·12	—	—	7	,,	41	–12·1	,, 8193
,,	11	Do. . .	×	—	6·52	2·85	—	0·11	—	—	5	,,	10	–14·4	,, 7550
CXXX	1	Chisel . .	×	—	7 1	0 7	0·2	0·15	—	—	1A	—	87	–14·3	,, 5466
,,	2	Do. . .	×	—	5·82	0·37	0 15	0·23	—	—	1	I	21	–19·2	,, 8970
,,	3	Do. . .	×	—	5·3	0·48	0·14	0·2	—	—	1	VII	56	–19·0	,, 5416
,,	4	Do. . .	×	—	5·25	0·55	3·0	—	—	0·35	2	I	8	–20·7	,, 9318
,,	5	Awl . .	×	—	4·28	—	—	—	—	0·12	1	IV	63	–13·4	,, 5329
,,	6	Chisel . .	×	—	3·1	0·37	0·12	0·2	—	—	5	III	16	–15·8	,, 7505
,,	7	Awl . .	×	—	2·9	—	—	—	—	0·18	7	IV	70	–12·1	,, 8065
,,	8	Knife . .	×	—	2·75	1·20	0·1	0·09	—	—	2	II	22	–14·5	,, 4965
,,	9	Do . .	×	—	6·8	2·7	—	0·1	—	—	3	,,	24	–15·4	,, 9143
,,	10	Chisel . .	×	—	1·26	0·62	0·32	—	—	—	1	IV	61	–21·8	,, 8623
,,	11	Spatula (?) .	×	—	2·46	0·4	0·09	0·03	—	—	Bet. Bls. 9 (VI) & 12			–16·3	,, 8232
,,	12	Chisel . .	×	—	2·15	0·48	—	0·12	—	—	Bet. Bls. 12 & 12A			–18 5	,, 5507
,,	13	Do. . .	×	—	3·6	0·21	0·08	0·08	—	—	4	—	16	–21·2	,, 8899
,,	14	Do. . .	×	—	3·51	0·22	0·15	0·15	—	—	7	II	88	–18·4	,, 8651
,,	15	Do. . .	×	—	5·15	0·3	—	0·21	—	—	12A	I	17	–21·9	,, 8745
,,	16	Do. . .	×	—	4·0	—	—	—	—	0·1	S. of Bl. 10 (IV)			–12·1	,, 5160

Tabulation of Metal Objects (Lower Levels).

Plate.	No.	Type.	Copper.	Bronze.	Dimensions in inches.						Locus.			Level in feet.	Field No.
					Length.	Width.	Thickness of Tang.	Thickness of Blade.	Height.	Diameter.	Block.	House.	Room.		
CXXX	17	Awl	×	—	5·55	—	—	—	—	0·22	First St. (21)			−20·3	DK 8743
,,	18	Knife	×	—	2·4	0·78	0·12	0·06	—	—	7	VIII	28	−14·6	,, 6084
,,	19	Do.	×	—	2·3	0·5	—	0·05	—	—	7	IX	29	−19·5	,, 8805
,,	20	Do.	×	—	3·22	0·23	—	0·07	—	—	4	—	16	−20·2	,, 6287
,,	21	Lance-head	×	—	3·83	1·25	0·15	0·09	—	—	7	V	78	−13·4	,, 7942
,,	22	Knife	×	—	2·85	0·73	0·1	0·09	—	—	First St. (5)			−20·1	,, 8404
,,	23	Do.	×	—	2·65	0·5	0·3	0·3	—	—	1	IV	61	−19·8	,, 9052
,,	24	Do.	×	—	3·43	0·78	—	0·08	—	—	7	V	64	−19·3	,, 8879
,,	25	Mirror	—	×	9·03	6·5	—	0·17	—	—	1A	—	87	−14·3	,, 5467
,,	26	Do.	—	?	3·58	2·0	—	0·22	—	—	7	IV	72	−16·5	,, 8200
,,	27	Knife	×	—	2·75	0·7	0·1	0·1	—	—	3	VI	47	−17·7	,, 3916
,,	28	Do.	×	—	4·0	1·65	—	0·1	—	—	1	II	9	−13·2	,, 5646
CXXXI	1	Awl	×	—	4·28	—	—	—	—	0·12	1	IV	63	−13·4	,, 5329
,,	2	Kohl-stick	×	—	4·45	—	—	—	—	0·14	1	II	33	−16·1	,, 5553
,,	3	Awl	×	—	4·18	—	—	—	—	0·25	1A	—	58	−15·7	,, 5064
,,	4	Kohl-stick	×	—	4·5	—	—	—	—	0·15	3	III	36	−17·7	,, 7475
,,	5	Awl	×	—	2·4	—	—	—	—	0·09	3	IV	45	−16·5	,, 7169
,,	6	Drill (?)	×	—	2·4	—	—	—	—	0·31	10	I	4	−22·3	,, 9151
,,	7	Chisel	×	—	4·0	—	—	—	—	0·1	S. of Bl. 10 (IV)			−12·1	,, 5160
,,	8	Awl	×	—	7·28	—	—	—	—	0·08	3	VI	47	−20·6	,, 7525
,,	9	Knife	×	—	1·32	0·6	0·14	0·1	—	—	Bet. Bls. 10 and 12			−19·7	,, 6601
,,	10	Kohl-stick	×	—	5·5	—	—	—	—	0·21	3	VI	40	−15·3	,, 7815
,,	11	Awl	×	—	3·9	—	—	—	—	0·23	10	I	2	−13·9	,, 6033
,,	12	Knife	×	—	2·75	0·7	0·1	0·1	—	—	3	VI	47	−17·7	,, 3916
,,	13	Do.	×	—	2·4	0·78	0·12	0·06	—	—	7	VIII	28	−14·6	,, 6084
,,	14	Sickle (?)	×	—	4·9	0·96	—	0·19	—	—	12	V	96	−12·6	,, 6416
,,	15	Knife	×	—	3·43	0·78	—	0·08	—	—	7	,,	64	−19·3	,, 8879
,,	16	Do.	×	—	2·65	0·5	0·3	0·3	—	—	1	IV	61	−19·8	,, 9052
,,	17	Do.	×	—	2·85	0·73	0·1	0·09	—	—	First St. (5)			−20·1	,, 8404
,,	18	Arrow-head	×	—	1·5	0·61	—	0·08	—	—	Bet. Bls. 10 and 12			−22 1	,, 6980
,,	19	Point	×	—	3·2	1·21	—	0·22	—	—	12	I	11	−21·0	,, 6495
,,	20	Axe	×	—	4 31	2·34	—	0·28	—	—	5	,,	2	−18·6	,, 9130
,,	21	Do.	×	—	7·2	1·95	—	0·28	—	—	1A	—	87	−15·9	,, 5469
,,	22	Do.	—	×	8 2	2·45	—	0·24	—	—	1A	—	87	−15·9	,, 5486
,,	23	Knife	×	—	6·8	2·7	—	0·1	—	—	3	II	24	−15·4	,, 9143
,,	24	Bolt	×	—	3·32	0·43	0·43	—	—	—	12	I	11	−21·0	,, 6505
,,	25	Do.	×	—	3·22	0·58	0·55	—	—	—	10	,,	5	−18·4	,, 8339
,,	26	Do.	—	×	7·95	0·61	0·61	—	—	—	12	,,	11	−21·0	,, 6504
,,	27	Knife	×	—	4·0	1·65	—	0·1	—	—	1	II	9	−13·2	,, 5646

TABULATION OF METAL OBJECTS (LOWER LEVELS).

Plate.	No.	Type.			Dimensions in inches.						Locus.				
			Copper.	Bronze.	Length.	Width.	Thickness of Tang.	Thickness of Blade.	Height.	Diameter.	Block.	House.	Room.	Level in feet.	Field No.
CXXXI	28	Axe . .	×	—	5·45	2·36	—	0·2	—	—	12A	I	15	-24·4	DK 7855
"	29	Spear-head .	×	—	7·3	3·93	—	0·15	—	—	12A	"	15	-24 4	" 7858
"	30	Casting . .	×	—	6·82	3·38	—	0·15	—	—	12A	"	15	-24·4	" 7863
"	31	Chisel . .	—	×	5·22	0·91	0·30	0·30	—	—	12A	"	15	-24·4	" 7856
"	32	Broken ingot .	×	—	6·35	2·68	—	0·3	—	—	12A	"	15	-24·4	" 7859
"	33	Knife . .	×	—	5·6	2·47	0·11	0·05	—	—	4	—	15	-19·0	" 6074
"	34	Axe . .	×	—	10·35	3·85	—	0·4	—	—	12A	I	15	-24·4	" 7853
"	35	Do. . .	—	×	11·15	4·31	—	0·47	—	—	12A	"	15	-24·4	" 7535
"	36	Do. . .	—	×	11·15	4·31	—	0·47	—	—	12A	"	15	-24·4	" 7535
"	37	Do. . .	—	×	9·35	4·17	—	0·4	—	—	12A	"	15	-24·4	" 7854
"	38	Spear-head (?)	×	—	11·4	3·1	0·13	0·1	—	—	12A	"	15	-24·4	" 7857
"	39	Do. . .	×	—	11·4	3·1	0·13	0·1	—	—	12A	"	15	-24·4	" 7857
CXXXII	1	Vase . .	×	—	—	—	—	—	3·3	2·88	1	II	6	-14·4	" 5614
"	2	Do. . .	×	—	—	—	—	—	3·27	2·74	9	VII	48	-20·7	" 8670
"	3	Dish . .	×	—	—	—	—	—	0·67	5·23	1A	—	87	-15·9	" 5468
"	4	Pan . .	×	—	—	—	—	—	0·49	3·15	3	IV	45	-18·7	" 7869
"	5	Kohl-pot .	—	×	—	—	—	—	3·35	1·26	9	VIII	16	-19·8	" 7659
"	6	Fish-hook .	×	—	1·9	—	—	—	—	0·15	7	III	44	-13·5	" 8154
"	7	Scale-beam .	×	—	6·2	—	—	—	—	0·15	Bet. Bls. 9 (VI) & 12			-20·4	" 9022
"	8	Bolt . .	×	—	25·15	0·62	0·62	—	—	—	9A	V	75	-19·1	" 7343
"	9	Scale-pan .	×	—	—	—	—	—	0·26	3·02	Bet. Bls. 9 (VI) & 12			-20·4	" 9019
"	10	Drill (?) . .	—	?	2·82	—	—	—	—	0·11	Bet. Bls. 5 & 6			-21·1	" 8769
"	11	Pan . .	×	—	9·08	—	—	—	0·7	5·1	1	VII	3	-14·5	" 5360
"	12	Vase . .	×	—	—	—	—	—	1·3	1·12	1	V	46	-12·6	" 6301
"	13	Fish-hook .	×	—	1·5	—	—	—	—	0·2	East of Bl. 1 (I)			-16·5	" 7375
"	14	Scale-pans .	×	—	—	—	—	—	—	2·05	3	VI	30	-12·9	" 4065
"	15	Razor . .	×	—	2·15	1·67	—	0·12	—	—	Bet. Bls. 1 & 7			-13·9	" 6628
"	16	Do. . .	×	—	1·65	1·12	—	0·08	—	—	1	VII	36	-16·5	" 9319
"	17	Do. . .	×	—	2·08	1·5	—	0·09	—	—	9A	V	75	-18·3	" 7467
"	18	Cone . .	×	—	2·59	1·0	—	—	—	—	7	I	7	-16·0	" 7994
"	19	Razor . .	×	—	1·7	1·08	—	0·08	—	—	1	III	2	-19·4	" 9054
"	20	Horn (?) . .	×	—	2·76	—	—	—	—	0·65	7	IV	50	-19·2	" 8867
"	21	Lead-hook .	—	—	2·3	0·2	—	0·13	—	—	North of Bl. 11			-22·7	" 7663
"	22	Silver casting	—	—	1·0	0·73	—	0·15	—	—	10	I	2	-17·8	" 6129
"	23	Fish-hook .	×	—	1·04	—	—	—	—	0·15	7	V	66	-17·0	" 8152
"	24	Mirror . .	—	×	9·03	6·5	—	0·17	—	—	1A	—	87	-14·3	" 5467
"	25	Fish-hook .	×	—	1·75	—	—	—	—	0·13	7	III	48	-14·5	" 8259
"	26	Mirror . .	—	?	3·58	2·0	—	0·22	—	—	7	IV	72	-16·5	" 8200
"	27	Pan . .	×	—	—	—	—	—	0·5	3·28	Bet Bls. 9 & 10 (III)			-16·0	" 6671

TABULATION OF METAL OBJECTS (LOWER LEVELS).

Plate.	No.	Type.	Copper.	Bronze.	*Dimensions in inches.* Length.	Width.	Thickness of Tang.	Thickness of Blade.	Height.	Diameter.	*Locus.* Block.	House.	Room.	Level in feet.	Field No.
CXXXII	28	Arrow-head	×	—	1·4	0·72	—	0·08	—	—	7	IX	29	-17·0	DK 8355
"	29	Do.	×	—	1·4	0·7	—	0·09	—	—	12	V	100	-22·1	" 7275
"	30	Do.	×	—	1·38	0·8	—	0·08	—	—	First St. (21)			-19·3	" 7741
"	31	Razor	×	—	2·5	2·0	—	0·11	—	—	First St. (22)			-16·8	" 8183
"	32	Silver casting	—	—	2·45	1·35	—	0·33	—	—	10	I	2	-17·8	" 6129
"	33	Broken ingot	—	×	4·6	2·08	—	—	—	—	12A	"	15	-24·4	" 7860
"	34	Copper lump	×	—	3·9	2·53	—	0·78	—	—	12A	"	15	-24·4	" 7860
"	35	Broken ingot	×	—	4·25	2·9	—	0·31	—	—	12A	"	15	-24·4	" 7862
"	36	Blade-axe	×	—	6·5	3·35	—	0·5	—	—	1	VI	52	-17·8	" 9113 (*b*)
"	37	Copper-melt	×	—	—	—	—	—	2·35	6·72	2	IV	15	-12·3	" 5525
"	38	Do.	×	—	—	—	—	—	2·2	5·4	2	"	15	-14·5	" 5536
"	39	Do.	×	—	—	—	—	—	1·26	4·32	2	"	15	-12·3	" 5522
"	40	Blade-axe	×	—	8·35	3·25	—	0·39	—	—	1	VI	52	-17·8	" 9113 (a)
CXXXIII	1	Knife	×	—	4·95	1·51	0·12	0·09	—	—	3	"	40	-18·4	" 7800
"	2	Chisel	×	—	5·15	0·3	—	0·21	—	—	12A	I	17	-21·9	" 8745
"	3	Do.	×	—	7·1	0·7	0·2	0·15	—	—	1A	—	87	-14·3	" 5466
"	4	Do.	—	×	8·38	0·7	0·45	—	—	—	12	I	11	-21·4	" 6043
"	5	Do.	×	—	5·6	—	0·15	0·21	—	—	3	III	36	-17·7	" 7480
"	6	Do.	×	—	5·3	0·48	0·14	0·2	—	—	1	VII	56	-19·0	" 5416
"	7	Do.	×	—	5·25	0·55	0·3	—	—	0·35	2	I	8	-20·7	" 9318
"	8	Do.	×	—	3·8	0·23	—	0·18	—	—	Bet. Bls. 12 & 12A			-17·5	" 5471
"	9	Needle	×	—	4·7	0·11	—	0·05	—	—	10	IV	82	-15·5	" 7012
"	10	Chisel	×	—	2·15	0·48	—	0·12	—	—	Bet. Bls. 12 & 12A			-18·5	" 5507
"	11	Knife	×	—	4·05	1·5	0·17	0·17	—	—	10	II	20	-16·5	" 6821
"	12	Do.	×	—	2·6	1·05	0·1	0·09	—	—	5	"	6	-17·7	" 7499
"	13	Lead casting	×	—	5·25	1·03	1·1	—	—	—	9	VII	17	-12·8	" 6702
"	14	Knife	×	—	2·75	1·2	0·1	0·09	—	—	2	II	22	-14·5	" 4965
"	15	Casting	×	—	4·9	0·6	—	0·15	—	—	12	V	96	-12·6	" 6416
"	16	Lance-head	×	—	3·83	1·25	0·15	0·09	—	—	7	"	78	-13·4	" 7942
"	17	Knife	×	—	1·93	0·9	—	0·06	—	—	Bet. Bls. 1 (*III*) & 7			-13·9	" 6626
"	18	Spatula (?)	×	—	2·46	0·4	0·09	0·03	—	—	Bet. Bls. 9 (VI) & 12			-16·3	" 8232
"	19	Chisel	×	—	5·82	0·37	0·15	0·23	—	—	1	I	21	-19·2	" 8970
"	20	Do.	×	—	4·55	0·29	0·2	0·2	—	—	1	II	7	-19·6	" 5806
"	21	Knife	×	—	6·1	2·71	0·13	0·1	—	—	1	IV	24	-17·2	" 6052
"	22	Do.	×	—	5·3	1·92	0·1	0·09	—	—	3	III	42	-17·2	" 7323
"	23	Knife or Dagger	×	—	5·85	1·81	0·15	0·11	—	—	7	IV	47	-17·3	" 8677
"	24	Knife	×	—	5·49	1·53	—	0·08	—	—	5	I	2	-20·7	" 7588
"	25	Spear-head	×	—	6·52	2·85	—	0·11	—	—	5	III	10	-14·4	" 7550
"	26	Do.	×	—	5·6	2·25	0·15	0·12	—	—	7	"	41	-12·1	" 8193

TABULATION OF METAL OBJECTS (LOWER LEVELS).

Plate.	No.	Type.	Copper.	Bronze.	Dimensions in inches.						Locus.			Level in feet.	Field No.
					Length.	Width.	Thickness of Tang.	Thickness of Blade.	Height.	Diameter.	Block.	House.	Room.		
CXXXIII	27	Knife . .	×	—	5·6	2·47	0·11	0·05	—	—	4	—	15	–19·0	DK 6074
„	28	Do. . .	×	—	6·65	1·19	0·12	0 09	—	—	1	I	21	–13·1	„ 6654
„	29	Knife or Dagger	×	—	8·95	2·63	0·11	0·11	—	—	3	VI	40	–18·7	„ 7802
„	30	Do. . .	×	—	8·18	2·19	0·15	0·13	—	—	3	II	25	–19·0	„ 9405
„	31	Knife	×	—	7·1	1·63	0·14	0·1	—	—	Bet. Bls. 7 (I) & 10			–15·0	„ 6126
„	32	Knife or Dagger	×	—	9·3	1 57	0·18	0·11	—	—	7	IV	49	–17·4	„ 8268
„	33	Dagger .	×	—	9·45	1·8	0·15	0·11	—	—	2	I	13	–13·8	„ 4268
„	34	Do. . .	×	—	7·05	1·39	0·15	0·12	—	—	First St. (22)			–23·2	„ 8559
„	35	Do. . .	×	—	7·9	2·17	0·12	0 09	—	—	1	IV	30	–14·3	„ 5291

CHAPTER XIV.

PERSONAL ORNAMENTS.

Beads (*Pls. CXI, 1–52; CXXV, 5, 12, 18; CXXXIV, 1–24; CXXXV, 1–3, 5, 19, 22; CXXXVI, 1–52–54–61, 63–9, 71–3; CXXXVII, 16–105; CXXXIX, 29, 112; CXLI, 61*).

As would be expected, many of the beads illustrated in this book are shapes and materials that have already been described in the first book on the site, and it would be superfluous to describe them in detail. Only those beads are dealt with here which are unusual or new to us; and of these a number of tables at the end of this chapter give particulars of size, material, locus, and level. Those objects that are illustrated both in photograph and line are starred.

Since 1927, we have found no groups of beads to rival in interest and beauty those found by Rai Bahadur Daya Ram Sahni in the HR Area.[1] In fact, the only beads that definitely belong together are the groups illustrated in Pls. CXXXV, 19, 22; CXLI, 61. Nevertheless, a large number of isolated beads of unfamiliar shape have been found, many of which are of great interest both in the technique of making and the material used. In view of the importance of these materials for the light that they throw on the interrelationships of the Indus valley with other countries as well as with other parts of India, they will be discussed first.

Materials.

Steatite easily takes first place in importance; it is no exaggeration to say that three-quarters of the beads found at Mohenjo-daro are either cut out of steatite or moulded from a paste made of the ground-up stone. The latter is very common and unless optical means are employed is frequently very difficult to distinguish from the natural stone. I can find no evidence that the beads made of this steatite paste were shaped in a mould. We have not as yet found a single mould for bead-making, nor does the appearance of any of the beads suggest that they were made in this way. It seems that the steatite paste was made up into blocks, from which the beads were carved in the same way as they would have been from the natural stone.[2] I do not know if great pressure would make powdered steatite adhere together, but under a glass of moderate power I can see no binding substance, and if one was employed it is quite transparent.

Whether the natural stone or made from powdered steatite, the usual colour is white; very rarely do we find a steatite bead of a darker colour, black, dark grey, or yellow. It is probable that the great majority of these white steatite beads, however made, were once glazed; and though the colour of this glaze has more frequently than not faded or entirely disappeared, the traces that remain show that originally the beads were either blue or green, the blue being the

[1] Marshall, *Mohenjo-daro and the Indus Civilization*, pls. CXLIX; CL.

[2] This does not apply to faience beads, of which there is evidence that some at least were made in moulds.

cerulean-blue derived from copper so well known among the faience and other beads of Egypt and elsewhere.[1] The green glazes probably had a trace of iron in them.[2] In some cases, the glaze has entirely disappeared from the bead, and in others its substance is well preserved though the colour is not. It is sometimes difficult to say whether the steatite had been artificially whitened by calcining before the beads were cut or the beads were burnt after being made and prior to glazing, which would have had the effect of hardening them.[3] I do not think that the heat required for glazing a bead would have been enough or sufficiently prolonged to convert a grey steatite, for instance, into white. A few of these steatite beads had a white polished surface like that of most of the steatite seals,[4] which were probably never glazed. Beads of either steatite or powdered steatite are as common in the lower as in the upper levels.

Faience beads came next in order of popularity, and the same glazes and colours were used as for the beads of steatite. The body material of the faience beads of Mohenjo-daro appears to be the same as that used in most ancient countries, namely, quartz or sand bound with some transparent material. These beads also are as frequently found in the lower as in the upper levels.

Allied to faience was a hard *vitreous paste* made by mixing glaze with a siliceous powder and firing it at a high temperature. Occasionally, beads of this material were fired at too great a heat with the result that they lost their exterior glaze and have a dull and pitted surface. Owing to their containing so much glaze which penetrates right through their substance, beads of this material have in general retained their colour much better than the faience beads, and they are mostly either turquoise-blue or apple-green. Unless the surface of this make of bead was re-glazed, for which I have found no evidence, we should not perhaps expect to find beads of vitreous paste brilliantly coloured, for the colour would, of course, be modified by the infusible base with which the glaze was mixed. Beads of vitreous paste were made throughout the occupation of Mohenjo-daro; according to Childe similar beads are found at Susa,[5] and specimens ranging in colour from apple-green to violet are known from Egypt between the Eighteenth and Twenty-sixth Dynasties.[6] That vitreous paste was used at Knossos in M. M. I. times at least is proved by the finding of the fore-arm of a small figurine in that material.[7] It is useless, I think, to look for the origin of this process in any one country, for those early cultures that were acquainted with the art of glazing, and they were many, would soon have discovered that mixing a glaze with the substances that were usually employed for making faience would greatly strengthen the resulting material. I have a suspicion that vitreous pastes were more

[1] Some of the blue glazes of ancient Egypt contain 60 to 80 per cent. of silica and 3 to 5 per cent. of copper—a full blue anything up to 10 per cent. of copper. See Russell in *Medum*, pp. 45, 46.

[2] Even a minute trace of iron as an impurity will affect the colour and convert blue into green.

[3] Some of the beads have a grey interior; in others it is quite white.

[4] *Mohenjo-daro and the Indus Civilization*, pp. 379, 688. For detailed description of this white coating, see Beck, *Ancient Egypt and the East*, Dec., 1934.

[5] *Most Ancient East*, p. 139.

[6] Petrie, *Arts and Crafts of Ancient Egypt*, p. 116.

[7] Evans, *Palace of Minos*, I, p. 170. See also pp. 488-90 for general observations on faience and vitreous pastes.

commonly used in ancient times than is generally supposed, and that some of the beads now classed as faience will eventually be found to be vitreous paste. Sometimes the pitted surface of a bead in contrast with the smooth, glazed surface of faience that has been normally fired reveals the substance of which the bead is made.

Beads of *pottery* are more numerous than those of vitreous paste, and they vary greatly in shape. Some have a red, iron oxide slip, presumably once polished and perhaps intended to imitate carnelian; and others have a cream slip or no slip at all. These pottery beads must have been made for and worn by the poorer people; and even a corrugated bead (Pls. CXXXVI, 19; CXXXVIII, 16), obviously intended to represent coiled wire, was doubtless worn with pride by its owner though it had not even a slip to improve its appearance.[1] A pottery bead (Pl. CXXXVI, 11) of a form now well known to us is quite as often found in the Intermediate III stratum as in the upper levels. It is characterised by its large hole and by the incised marks across its axial line. We know from the evidence of a broken bead that these pottery beads were sometimes glazed,[2] and it is suspected that the bead seen in Pl. CXXXVI, 60, also has a pottery base. As glazes adhere very tenaciously to pottery, it is quite possible that some of the more ornamental beads designated faience may in actual fact have cores of pottery.

Shell beads as might be expected, are common; but more have been found in the higher than in the lower levels. The type seen in Pl. CXXXVI, 10, occurs quite frequently. Curiously enough, only one bead of mother-of-pearl is known (Pl. CXXXVII, 43), and this had been so worn by the string on which it was threaded that one side of it was nearly severed.[3] The shell used for the other beads was of the kind from which inlay and other articles were ordinarily made.

Some beads are stated in the tables to be *paste*, for the reason that it is uncertain whether they are made of powdered steatite or some other kind of paste. They were probably once glazed, though no trace of the original colour now remains and they are white or light grey in hue.

Beads of *agate* are fairly common and show considerable variety of colour, marking and shape. Agate was one of the most commonly used stones at Mohenjo-daro and ample supplies appear to have been available to the lapidaries of the city.

[1] *Cf.* Pl. CXI, 14, which comes from a low level. There is the possibility that some of the pottery beads were made of sacred earth and worn for their amuletic powers rather than as objects of beauty, which they certainly are not. In some of them the holes are so badly worn (Pl. CXXXVI, 36) that they must have hung askew.

[2] *Mohenjo-daro and the Indus Civilization*, p. 516.

[3] It must be realized that mother-of-pearl-producing shells of the species that occur in the Persian Gulf were too flat and too thin to be of use except for inlay; and for that they were apparently never used in the Indus valley, though frequently in Sumer. Pearl beads are unknown; in fact, pearls do not seem to have been used in the ancient world, with the notable exception of a graduated string of half-pearls found in the tomb of Ah-hotpe of the late Seventeenth Dynasty of Egypt. Lucas, however, pronounces these to be button-pearls; *Ancient Egyptian Materials and Industries*, p. 351.

Carnelian of a good red colour is somewhat uncommon save for some long, cylindrical, barrel-shaped beads (Pl. CXXXVI, 4). Disc-beads (Pl. CXXXVII, 61) of this stone are exceedingly rare, whereas in Egypt and Sumer they were very common during the early periods. That this stone was greatly valued is shown by the many examples of cylindrical and barrel-shaped beads that were in use after being broken, sometimes with the broken edges untrimmed and sometimes with the edges smoothed down (Pl. CXXXV, 19, strings u and t).

Jade is rare and not found at all in the lower levels. A very fine string of beads found by Mr. Dikshit[1] prior to 1927 and a few isolated beads in the find unearthed by Rai Bahadur Daya Ram Sahni[2] must have belonged to wealthy people.[3] All the beads of this material are barrel-shaped; one (with possibly a second) occurs in the string h, Pl. CXXXV, 19. The rarity of this stone is perhaps to be expected, seeing that the nearest sources of supply were, according to Sir Edwin Pascoe, the Pāmīrs and Eastern Turkestān, Tibet or North Burma,[4] all of which are very remote and must have seemed still more so in the past. That Mohenjo-daro had communications with Central Asia seems to be indicated by the pottery heads with typically Mongolian features seen in Pl. LXXVI, 2–4, 8, 9.

Beads of *breccia* or some form of *conglomerate* are seldom found, perhaps because this kind of stone is somewhat difficult to work.[5] The finest example is No. 44 in Pl. CXXXVI (see also Pl. CXXXVII, 105), which is no less than 3·1 ins. long by 1·6 ins. in diameter, with a hole 0·28 in. in diameter. One side is slightly flattened by wear and the edges at either end of the hole had been rubbed by the string. This bead, which is unpolished and made of a black stone with white veins and markings, is by far the largest that we have found, and its weight and size must have been very cumbersome to its wearer.[6]

No. 51 in Pl. CXXXVI, a very beautiful bead, has irregular masses of white in a black matrix, the latter being tinged with red in places. It was carefully shaped and polished.[7]

The stone of which No. 27 in Pl. CXXXVII was made has dark red and grey patches in a white ground. No. 31 in the same plate has black and yellow patches on a white ground. No. 74 is mottled brownish-red and white; and No. 83 in Pl. CXXXIX is black and white.

Quartz, with which *crystal* is included, rarely figures amongst the beads of Mohenjo-daro. The shapes of some of the beads of this stone are unusual and merit illustration. No. 17 in Pl. CXXXVII and the very fine bead in Pl. CXXXVIII, 12, are semi-opaque and milky-white in colour, and are well made and finished. No. 26 in Pl. CXI (see also Pl. CXXXIX, 55) is a transparent, crystal disc-bead with a bi-conical hole, both shape and material being very rare in the Indus valley at this period. No. 43 in the same plate (see also Pl. CXXXIX, 79)

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXLVIII, A. 6.

[2] *Op. cit.*, pl. CL.

[3] There are one or two examples in string g in pl. CXXXV, 19.

[4] *Mohenjo-daro and the Indus Civilization*, p. 684.

[5] Not so much on account of its hardness, but because this hardness is unequally distributed.

[6] It may have been worn by an animal.

[7] Since proved to be an imitation of stone.

is a well made bead of milky quartz. No. 39 in Pl. CXXXIX is a transparent, white, crystal disc-bead, like No. 26 in Pl. CXI; and so is No. 56 in Pl. CXXXIX. It is curious to find three disc-beads all of the same pattern and material, though two of them were found in the same place; and I am inclined to regard them as imported in view of their rarity. Three of these beads, namely, No. 12 in Pl. CXXXVIII and Nos. 39 and 56 in Pl. CXXXIX, have a curious surface such as I have before observed in quartz beads that had been glazed. This technique of glazing quartz was also known in Egypt in Predynastic times and as far back as S. D. 35-48.[1] I do not know of the occurrence of glazed quartz beads in Sumer; but it is likely, I think, that they will also be found there, especially as the disc-bead with a biconical hole bored from either end is well known in that country.[2]

Limestone beads are well known and are usually barrel-shaped, either long or short. Of the two composite beads [Pls. CXI, 36 (see also Pl. CXXXIX, 87); CXXXVI, 5], one is limestone and shell, the other segments of pink and white limestone, Nos. 23 and 65 in Pl. CXXXVII are cream-coloured, and No. 34 in the same plate grey limestone veined with purple-black. It is noteworthy that pink limestone which has very rarely been found up to the present only occurs in the composite beads. Limestone of this colour was used for beads and occasionally for stone vessels in the very early Predynastic Period of Egypt,[3] and both pink limestone and pink marble were very frequently used for making the archaic seals of Sumer.[4] Indeed, as far as I can ascertain, pink limestone was only favoured in the early periods of these two countries.

Jasper beads also are scarce. No. 40 in Pl. CXXXVII is green jasper banded with black. No. 6 in Pl. CXXXVIII, an exceptionally well made and well polished bead, is olive green and dark red, banded with black lines. The ends of No. 19 in Pl. CXXXIV are chocolate-coloured and the white centre is veined in the same colour. No. 41 in Pl. CXI is black with red veins; and No. 85 in Pl. CXXXIX has brown ends, a red centre, and is veined with white. A better selection of jasper and agate-jasper beads found prior to 1927 is fully discussed by Mr. A. L. Coulson.[5]

Lapis-lazuli, as mentioned before, is rarely found, and there are only two beads of this material to record in the present book (Pl. CXXXVII, 18, 76).[6] These may have been imported from Sumer, for in shape they are like many of the Sumerian beads of c. 2,600 B. C. and earlier. Afghānistān which now produces very fine lapis-lazuli was possibly not yet known as a source; otherwise we should have expected this mineral to be more often found at Mohenjo-daro. Persia was known as a source of lapis-lazuli, and it was from that country that

[1] Petrie, *Prehistoric Egypt*, p. 42.

[2] But see Beck in *Archæologia*, vol. 79, p. 147, who reports on some found at Nineveh and Ur. It seems that the glazing was done by painting the surface of the bead with soda carbonate and then heating. For a fuller account, see Beck in "Glazed Quartz", *Ancient Egypt and the East*, June 1935, pp. 1-16.

[3] S. D. 30. See Brunton and Caton-Thompson, *Badarian Civilization*, p. 56.

[4] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. I, p. 282.

[5] *Mohenjo-daro and the Indus Civilization*, Chap. XXVI.

[6] Note also the gamesman in Pl. CXXXIX, 17, the only specimen that we have found made of this stone.

the Sumerians and, perhaps indirectly, the people of Mohenjo-daro obtained their supplies.[1]

The only *turquoise* bead (Pl. CXXV, 18) is an irregular fragment of matrix, 1·18 ins. long and wide by 0·58 in. thick. It is a bright blue in a matrix yellow-grey in colour. This bead was evidently left the natural shape as far as possible, so as not to lose any of the precious material. It was found in Bl. 9, ho. VIII, rm. 47. Level: – 5·6 ft.

Beads of *green felspar* or *amazonite* (Pl. CXXXVII, 21, 37) are rarely found save with other beads in *caches*,[2] and not as yet in the lower levels. This stone was probably very expensive and worn only by the well-to-do. Miss Caton-Thompson reports that she has found beads of this material in a Neolithic settlement in the Fayum,[3] and Woolley has unearthed them in his pre-Flood strata at Ur.[4] Thus this microline felspar appears to have been valued as a material for beads in both Egypt and Sumer from the earliest times, and it is more than probable that it was also used as an ornament in the early history of Mohenjo-daro, especially as it is found in the Nilgiris in southern India.[5] That we have not found specimens of this stone in the lower levels of Mohenjo-daro may conceivably be due entirely to chance.

The first *haematite* bead to be identified at Mohenjo-daro (Pl. CXXXVII, 25) was found at the level –11·1 ft. It is a small barrel-shaped bead with a smooth, but unpolished surface.[6]

Beads of *serpentine* also have only recently been unearthed, one from the upper and one from the lower levels (Pls. CXI, 15; CXXXVII, 42; CXXXIX, 88). The second bead is olive-green in colour, and the first, which is part of a composite bead, dark green approaching black.

Onyx beads are rare and only occur in special finds, such as the *caches* unearthed prior to 1927.[7] The fine, white onyx bead veined with black, illustrated in Pl. CXXXVI, 68, is of a type that is very familiar to us in Sumer,[8] and in view of its shape and material I am inclined to think that it was an importation.

Several curious pendants are made of a variety of *hornblende*, which Sir Edwin Pascoe states is best termed an *amphibolite* (Pls. CXI, 53; CXXXV, 8; CXXXVII, 11–13; CXXXIX, 86, 95, 103). Only a couple of beads of this

[1] I should mention here that in some tentative excavations in 1931 we found the top of a small toilet vase made of lapis-lazuli of a most beautiful and even dark blue.

[2] *Mohenjo-daro and the Indus Civilization*, pp. 523, 525, 545-6, 678.

[3] *Antiquity*, vol. I, p. 333.

[4] *Antiquaries Journal*, vol. X, p. 336.

[5] In view of the rareness of this stone at Mohenjo-daro, another source than the Nilgiris should perhaps be sought for the material of these early Sumerian beads, a source now perhaps exhausted.

[6] Lieut.-Col. Jacob informs me that haematite occurs in Balūchistān some five miles N. W. from Wālla, and about 17 miles north of Fort Sandeman in the Sang Ghār Mountain. Whether this source was known in very early times is uncertain, but the ore is not so often found at Mohenjo-daro as in ancient Sumer or Egypt.

[7] *Mohenjo-daro and the Indus Civilization*, pp. 536-7.

[8] *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, pl. LX, 1, 2.

material are known. Nor do we yet know how these pendants were worn, save that we find them associated with groups of beads.

Gold beads are rarely found, save with other jewellery in well preserved hoards. Being a precious metal great care was evidently taken of it and gold beads seem rarely to have been accidentally lost. No. 26 in Pl. CXXXVI is a disc-bead made by soldering two domed pieces of the metal together.[1] The core inside this bead is a grey composition, which had expanded slightly and split the bead where it was soldered. The joint was very carefully made and does not betray itself by its colour. No. 95 in Pl. CXXXVII is a short barrel-shaped bead of thin gold foil over a resinous (?) base. There is no evidence of solder. The middle, barrel-shaped bead in Pl. CXXXV, 22, is also gold, and so are the tapered bead (Pl. LXXXII, 8) and the faceted bead (Pl. XXXII, 5) which are described further on in this chapter.

Silver was more common than gold; but on the whole few beads were made of this material, though other ornaments were (Pl. CXXXV, 4, 7, 13, etc.). Nos. 51 and 52 in Pl. CXXXVII, which were found together with twenty-two other silver beads of similar shape, are thin foil over a core of a dark-coloured substance resembling bitumen, which was perhaps run in afterwards.

Copper and *bronze* were frequently used in the manufacture of beads, spacers and terminals. The two latter were always made of thin metal, but the beads which are generally short-barrel shaped or globular are solid castings, the holes through them, it would seem, being drilled later, though it is possible that they were cast with holes which had to be improved. Traces of gilt survive on one copper, or perhaps bronze, bead, and it is possible that many of these beads were so finished to imitate gold.

Unfinished Beads *(Pls. CXI, 6, 41, 48; CXXXIV, 13; CXXXVI, 7, 8, 20, 28, 37; CXXXVIII, 14).*

Proof that some of the beads made of hard stones were actually manufactured at Mohenjo-daro is afforded by the unfinished specimens that we have found, though no actual bead factory has as yet come to light. These unfinished beads are described in detail below :—

Plate CXI.—No. 6. Light brown agate splashed with white. Only roughly rubbed into shape and left unbored.

No. 41. Black jasper with prominent red veins. Was never bored, but is otherwise finished except for the final polishing.

No. 48. Light grey agate with milky bands and veins. Shows the preliminary flaking well; the ends had been practically untouched by the abrasive with which the middle portion was partially smoothed down. It was left unbored.

The beautifully shaped bead, No. 13 in Pl. CXXXIV, is drab-coloured agate veined with white. It is shaped and partly polished, but was left unbored. Possibly this is really a weight (5·8 gms.), but we have not hitherto found any weights of this type so small.

[1] See Gordon Childe, *Antiquity*, Sept., 1932, p. 257.

Plate CXXXVI.—No. 7. Brown and white agate. Shaped and partly polished, though the hole had not yet been bored. This bead was made by flaking longitudinally, and its semi-polish was produced by rubbing with a fine abrasive to remove the facets.

No. 8. Dark-grey agate. Also unbored, though it is smooth and well shaped with the preliminary flaking entirely removed. The narrow, dark red band at each end is an applied colour; it can be removed with a knife, though with some difficulty. This bead is, in fact, a clumsy attempt to imitate the stones with natural, even markings that were frequently used for the better-class jewellery; in making the latter very considerable skill was displayed in the selection and cutting of the stones.

No. 20, which is dark green agate banded with red and black, looks as if it, too, had been artificially coloured. As the photograph shows, it had been roughly rubbed down into shape, but was far from being finished and was left unbored. There is some slight evidence of a preliminary longitudinal flaking.

No. 28 is a barrel-shaped bead, oval in section, of white agate veined with brown and grey. It was left unfinished, for though it had been well rubbed down there is no trace of polish. After a hole had been partly drilled at one end the bead was discarded, evidently owing to the appearance of a flaw.

No. 37. Agate, irregularly banded and veined with brown on a white ground. The preliminary longitudinal flaking had mostly been removed with an abrasive, but the bead was left unbored.

No. 14 in Pl. CXXXVIII is an extremely interesting bead of chocolate-coloured agate with white ends. It was almost ready for the final polishing, for at one end a hole 0·1 in. in diameter was bored to a depth of 0·8 in. and at the other end the hole had been started.

These ten beads, three of which were found in the lower levels, but only one from as low as 18·2 ft. below datum, prove that beads were manufactured at Mohenjo-daro from the Intermediate II phase onwards, and probably before that. They provide certain evidence that beads of the harder stones, of agate and jasper, were first flaked into shape and then rubbed down. That this rubbing down was probably done in a groove in a stone is suggested by No. 48 in Pl. CXI, whose ends were untouched by the abrasive. The beads then received at all events a preliminary polish before being bored, which seems a rather curious procedure; one would have thought that a bead could be so much more effectively polished on a lathe than by any other means, and the hole would have served to keep the bead in place. It may be that this method was also employed after the beads had been bored; this would explain why we have found no unbored beads whose surfaces had received more than a preliminary polish. The craftsman whose business it was to shape the beads by flaking must have been highly skilled; after that the subsequent processes would have been comparatively simple.

Those few beads whose holes were left unfinished, No. 28 in Pl. CXXXVI, and particularly No. 14 in Pl. CXXXVIII, show that the boring was done from each end, the two holes meeting more or less correctly in the middle. Even with a diamond abrasive[1] and modern appliances, the bead-maker of India follows the

[1] Anciently some such abrasive as emery was used with a copper drill and water, just as copper or iron wire is now used for slicing such stones as agate.

same procedure to-day—with not altogether satisfactory results, for at the meeting of the two holes in the middle of the bead a ridge is frequently left which all too soon cuts the cord upon which the bead is strung.

Composite Beads (*Pls. CXI, 25, 36 ; CXXXV, 1, 2, 5 ; CXXXVI, 5 ; CXXXIX, 87, 88, 89*).

Though this type of bead is rare, we have several interesting specimens to record. Prior to 1927, no beads of this type had been unearthed, and it was therefore assumed that none existed, especially as the numerous hard stone beads proved the Indus Valley people to have access to supplies of material which were both varied and ample.

The finest composite bead [DK 11337 (j)] that we have (Pl. CXXXV, 1, 2, 5) was found with other beads and ornaments in a copper canister (Pls. CXVI, 3 ; CXVIII, 18).[1] This bead had separated into its component parts, and No. 2 in Pl. CXXXV shows these five pieces put together in the same order as in the original bead. Unfortunately, the two stones of which this bead was made, namely, red carnelian and white or blue chalcedony or agate, have lost most of their colour owing to the use of caustic soda to clean and separate the vessels of the hoard in which it lay.

This bead, which is of the short-barrel type, is 0·49 in. long by 0·44 in. in diameter in the middle, with the ends and middle portion carnelian. It was probably made by grinding thin slips of stone to the requisite thickness and cementing them together. The partially finished bead was then rubbed down to barrel-shape and may have been finally smoothed off and polished on a lathe. The hole was bored after the slips had been cemented together and most probably before the final polishing of the bead.

In 1926, some very fine translucent agate and agate-jasper beads were found by Rai Bahadur Daya Ram Sahni which were banded naturally in two colours and showed considerable skill on the part of the lapidary who so manipulated his stones as to get the markings regular.[2] I have no doubt that the bead under discussion is a copy of these naturally marked agate beads whose value was doubtless greatly enhanced by the regularity of their veining. It might be thought that the composite imitations of these well marked beads would have been even more highly valued ; but comparatively unskilled labour could have ground down the thin slips required to make a composite bead, whereas very skilful flaking was required to shape the naturally marked stone so as to get the coloured veins in the proper positions. Indeed, it is not unlikely that these made-up beads were foisted on the unobservant as natural stones. In only one case has any trace of the cement remained adhering to the slips, and we are uncertain what it was. Shellac being waterproof would have served the purpose quite well, were it not that the joints would have betrayed themselves unless the shellac had first been bleached.[3] The surfaces of each slip are remarkably plane, which would have greatly facilitated their firmly adhering to one another.

[1] Locus : Bl. 15, ho. VI, rm. 28. Level : –7·1 ft.

[2] *Mohenjo-daro and the Indus Civilization*, pl. CL, string h, 4, 28 ; string i, 25, 27, etc.

[3] Shellac and its properties must have been known to the people of ancient Sindh, as well as of other parts of India, from very early times. Lucas is inclined to doubt whether the modern methods of bleaching shellac were known so early : *Ancient Egyptian Materials and Industries*, p. 302.

No. 5 in Pl. CXXXVI (DK 10942) is a composite bead, 1·08 ins. in diameter by 0·31 in. thick, made up of two parts, one of shell and the other pink limestone, the former 0·11 in. and the latter 0·2 in. thick. On the flat side of the stone portion of this bead there is a groove 0·1 in. wide; the shell portion has no groove. Both pieces are slightly rounded on the outer, and flat on the inner face. The shell is highly polished, but the limestone piece appears to be unfinished and still shows marks of the abrasive used to rub it down. No trace of cement is visible and the two pieces were found separately, though they were in the same room. Locus; Bl. 18, rm. 17. Level: –7·4 ft.

No. 25 in Pl. CXI (DK 5531) (see also Pl. CXXXIX, 89) is part of a long barrel-cylinder bead, now 1·77 ins. long by 0·45 in. in diameter at its widest part, which was probably made up of five segments. Of the three segments found, two are polished black steatite and the white portion is shell. They are still held together by a copper tube whose outside diameter is 0·11 in. A metal support was obviously necessary in a composite bead of this type, whose length would have made it peculiarly liable to breakage. Like the finer stone beads, this specimen was probably shaped after the segments had been fitted together, and, in consequence, a stone had been selected of about the same hardness as the shell to allow of uniformity in grinding. Locus: Bl. 2, ho. IV, rm. 22. Level: – 14 ft.

No. 36 in Pl. CXI (DK 5617) (see also Pl. CXXXIX, 87). Two or more parts of this bead, which is oval in section, are now missing. Its present length is 0·58 in. by 0·68 in. wide and 0·35 in. thick. The darker coloured, middle segment is pink limestone, and the lighter segments white limestone. The lapidary made this bead rather cleverly; the segments are not of equal thickness throughout so that the bead closely resembles one made from a natural, veined stone, though he may not have convinced the purchaser that it was one of the rarer hard stones. The three parts of this bead were still adhering together when found, and the cement used has the appearance of ordinary shellac. Locus: Bl. 1 (Palace), north wing (IV) rm. 74. Level: –15·5 ft.

No. 88 in Pl. CXXXIX (DK 8124) is one segment only of a composite bead which probably comprised some three or five parts in all when complete. Round in section, it is 0·95 in. long by 0·47 in. in diameter, with a hole 0·15 in. in diameter through its centre. The material is dark green, almost black, serpentine. Locus: Bl. 7, ho. III, rm. 47. Level: –13·8 ft.

Composite beads, as far as I can gather, were exceedingly rare in the ancient world, and those of Mohenjo-daro appear to be the earliest that have been found. Moreover, the bead already referred to and illustrated in Pl. CXXXV, 1, 2, 5, is the most complicated of all that have been found up to the present in any ancient site. Mr. Horace Beck has described a bead from Nineveh, apparently of comparatively late date,[1] that is composed of a white agate back plate, on which an obsidian front was cemented to imitate an onyx eye-bead.[2] A composite bead of the Twelfth Dynasty, consisting of green felspar and lapis-lazuli beads of disc-form threaded on a piece of copper wire and capped at each end with gold,

[1] Beads, as is well known, were frequently re-used, and at the present day many Arab women of Mesopotamia are wearing beads certainly dating from before 2,500 B.C.

[2] *Archæologia*, vol. LXXIX, p. 143.

has been found at Harageh in Egypt.[1] I do not know of any further examples from that country.

Etched Carnelian Beads (*Pls. CXI, 4; CXXV, 5; CXXXIV, 6; CXXXV, 3, 19 (g)*).

This variety of bead is rare at Mohenjo-daro, and we have only four more specimens to add to the four found before 1927.[2] I do not propose to describe here how these beads were made; the subject is adequately dealt with by Beck elsewhere.[3]

No. 4 in Pl. CXI (DK 7293) is unfortunately only a fragment. The estimated diameter of the original bead is 0·85 in.,[4] and it was 0·2 in. thick with a hole, 0·1 in. in diameter, through the centre. A section either way of this bead is an attenuated oval. It had been covered with a white substance that was burnt in;[5] and subsequently on both sides of the bead was painted in black the design seen in the illustration, which is new to us at Mohenjo-daro. This design apparently consisted of a small central circle surrounded by five others, each of which was linked to it, the five interspaces between these circles being each filled in with a loop. This is the first example of this black-on-white process to be found at Mohenjo-daro, though Beck has told me of specimens from Ur and Syria.[6] Locus: Bl. 3, ho. VI, rm. 47. Level: – 18·2 ft.

No. 5 in Pl. CXXV (DK 11337 (g)) (see also Pl. CXXXV, 3) is an enlarged photograph of a red carnelian bead, 0·4×0·39 by 0·15 ins. thick, with the same design in white lines upon both faces, a design similar to one found during the earlier excavations.[7] Beads of similar shape, the same material, and with the same kind of decoration have been found by Woolley at Ur and dated by him to c. 3,500-3,200 B. C.[8] But though more often found at Ur than at Mohenjo-daro, they are by no means frequent finds.[9] Locus: Bl. 15, ho. VI, rm. 28. Level: – 7·1 ft.

No. 6 in Pl. CXXXIV (SD 2917) is a red carnelian bead, a flattened oval in shape with a plain white line round the edge of each face. Both in shape and mode of decoration it exactly resembles a bead found at Kish, which is now dated to c. 2,600 B. C.[10] Locus: Bl. 1, rm. 54. Level: +2·2 ft.

No. 19 (g) (No. 20 down on the right) in Pl. CXXXV (DK 11337 (g)) has very much the same pattern etched on it as a bead of similar shape found before

[1] Engelbach and Gunn, *Harageh*, p. 16, pl. XIV, figs. 2, 4.

[2] *Mohenjo-daro and the Indus Civilization*, pl. CXLVI, figs. 43-5, pp. 515-16. The fourth of these beads, a small one, has not yet been published.

[3] *Antiquaries Journal*, vol. XIII, pp. 384-98, pls. LXVI-LXXI.

[4] This bead may, however, have been slightly oval in shape.

[5] Probably carbonate of soda, which substance was used for painting the lines on the ordinary etched beads.

[6] For these, see *Antiquaries Journal*, vol. XIII, pp. 384-98.

[7] *Mohenjo-daro and the Indus Civilization*, pl. CXLVI, 43.

[8] *The Royal Cemetery*, pp. 374, 375, fig. 80, pl. 133.

[9] *Antiquity*, Dec., 1931, pp. 459-60.

[10] *Anthropology Memoirs*, Field Museum, Chicago, vol. I, pl. LX, 62.

1927;[1] and it is about the same size, namely, 0·35 in. in transverse diameter and 0·32 in. from pole to pole. This design when spread out consists of three joined annulets in the centre of which is an isolated circle; it resembles a motif that appears on etched carnelian beads from Kish[2] and also, without the inner circles, in the script of Mohenjo-daro.[3] It is also common in Sumerian and early Elamite art, both with and without the inner circles. It becomes the well known guilloche on Syro-Hittite cylinder seals, and I am inclined to think that it originated in the intertwined serpent device so well known in Indian art and also seen on a libation vase of Gudea.[4] Locus: Bl. 15, ho. VI, rm. 28. Level: – 7·1 ft.

Up to the present we have only found etched carnelian beads in the late levels which we provisionally date to about 2,600 B. C. The first specimen, however, with its quite different technique must be considerably older, if it be not an intrusion from a higher level, for which, however, there is no evidence.

Imitation Etched Carnelian Beads (*Pls. CXI, 8, 35; CXXXIV, 15, 16, 18; CXXXVI, 49, 50, 59–61; CXXXVII, 87, 88; CXXXIX, 98, 99*).

The rareness of the etched carnelian beads naturally led to the manufacture of imitations, and often a bead made of steatite or of steatite paste was coated with a thick red slip, leaving white lines to represent the white designs on the genuine etched beads. These imitation beads probably deceived no one, though they were often very cleverly made, a very high polish giving almost a translucent appearance to the red slip.[5] [6]

As a rule, the white marks are simple, but on No. 61 in Pl. CXXXVI the same motif of circles is seen as on certain etched carnelian beads (Pl. CXXXV, 19 (g)) both of Mohenjo-daro and Sumer. The rectangular bead in Pl. CXI, 35, is an unusual example of this process, for on its two broader faces there are pictographic characters in white against a dark-red slip, the white, of course, being the colour of the steatite of which the bead was made. This bead is unfinished as the hole was bored only at one end to the depth of 0·1 in. Otherwise the bead is well made, though the signs were roughly done.

The curiously shaped bead (Pls. CXI, 8; CXXXIX, 99), which will be further discussed later, is also a rough imitation of an etched carnelian.

The barrel-shaped bead, No. 59 in Pl. CXXXVI, is, judging by its lightness, made of steatite paste. On it is a design in white of trefoils, between which are linked circles on a lustrous red ground. This is an imitation of the carved steatite beads (Nos. 57, 65, 67, etc., in the same plate), with the same pattern; it will be discussed later under the title Carved Beads. When the incised designs on the latter beads were filled in with paste, it must have been difficult to distinguish them from the painted bead just described.

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXLVI, 45.

[2] *Anthropology Memoirs*, Field Museum, Chicago, vol. I, pl. LX, 63.

[3] Pls. LXXXV, 111; XCV, 445, 475, of this book.

[4] King, *Sumer and Akkad*, p. 76, fig. 29. This intertwined serpent device also appears on two, if not more, Proto-dynastic knife handles in Egypt.

[5] It was probably soon found, however, that the imitation bead was easily scratched.

[6] In some cases a deep red stain appears to have been used rather than a slip, and this stain took as high a polish as the white portions of the bead.

The lowest level at which this type of bead has been found is 18 ft. below datum. They are much more common in the upper than in the lower levels, which is to be expected since the etched carnelian beads were of Late date.

Beads of Unusual Make (*Pls. CXI, 29, 39; CXXXVI, 48, 51, 52; CXXXVII, 89, 94, 101; CXXXVIII, 15; CXXXIX, 73, 77, 90*).

The beads grouped under this head appear to be deliberate imitations of rare stones, which though much admired by the inhabitants of Mohenjo-daro were perhaps beyond the means of many of them.

Plate CXI.—No. 29 (see also Pl. CXXXIX, 73). Light grey paste with irregularly incised bands filled in with white paste. It is possible that this bead was fired before the inlay was inserted, as the latter material was probably not of the same fusibility. One can only surmise the original colour of the grey paste, but the bands of inlay were probably blue or green.

No. 39 (see Pl. CXXXIX, 90). This globular bead was decorated with violet-coloured bands inlaid in a paste that is now apple-green.

Plate CXXXVI.—No. 48 is a bead, oval in section, that was made up of little flat pellets of paste, now brown but probably once red, that were inserted in a matrix which was then glazed and fired; owing to damp and the saltiness of the soil, some of the pellets have separated from the base. The latter is now white, but this is probably not its original colour. This bead seems to be an attempt to imitate a breccia.

No. 51 (see also Pl. CXXXVIII, 15) consists of irregular white masses set in a black matrix which is tinged with red in places, both substances being made of some kind of paste which it is impossible to examine properly without damage to the bead. It was very carefully made and polished.

No. 52 (see also Pl. CXXXVII, 94). A beautiful bead made of steatite or steatite paste, on which chocolate-coloured marks, outlined with white, were painted on a light yellow-ochre ground. This bead, which was very carefully polished, was evidently intended to represent a hard stone of some description, but its lightness and softness would inevitably have betrayed it as an imitation.

Plate CXXXVII.—No. 89 is a faience bead with bands of chocolate-coloured inlay on a white ground. Very little glaze now remains, but the bead had been overfired with the result that the colours in the inlay have merged in places with the ground.

No. 101 is a steatite bead of somewhat irregular shape, probably purposely so in order to imitate more closely a natural, hard stone pebble. It was stained with irregular markings in red, the ground being left mostly white, though black had been sprinkled or sprayed over the white steatite bead before the red was applied to make the imitation of a naturally marked stone even closer.

No. 77 in Pl. CXXXIX is a rectangular faience bead, square in section, decorated with turquoise-blue bands on a white ground. It is not absolutely certain that the bands of colour were actually inlaid, though they appear to be so. Beads of this shape are very rare.

Carved Beads (*Pls. CXI, 5, 7; CXXXVI, 35, 54, 57, 66, 67, 71; CXXXVII, 92, 97–99, 104; CXXXVIII, 1–3, 39; CXXXIX, 74*).

The great majority of these carved beads are made of steatite and the trefoil pattern was that most favoured. They are more rarely found in the lower than in the upper levels, but this may be due to chance. As a rule, the long-barrel shape was favoured for beads of this kind, and Pls. CXXXVII, 98; CXXXVIII, 2 are exceptions. The trefoils were invariably cut with a drill, and the indentation of its point is seen in the centre of each lobe. The ground was also cut away between the trefoils. We have ample evidence that both the ground and the interiors of the trefoils were filled in with a red paste, doubtless in imitation of an etched carnelian bead, though we have yet to find such a carnelian bead with a trefoil design. The existence of numbers of these imitation carnelian beads with their trefoil pattern certainly suggests that the genuine beads were imported; for otherwise, I think, they would have been more common and, moreover, decorated with trefoil and other Indian patterns rather than with designs which seem foreign to the art of the Indus Valley.

Plate CXI.—No. 5 (see also Pl. CXXXIX, 74). Steatite bead with a design of trefoils cut with a drill. No trace of colour now remains.

No. 7. Fragment of a very large steatite bead, with raised trefoil pattern made by cutting away the surface to the depth of 0·08 in. with a chisel and not the usual drill. This must have been a very large bead indeed, for the fragment is 2·08 ins. long. No trace of colour now remains.

Plate CXXXVI.—No. 35 is a steatite bead, elliptical in section and 0·95 in. long by 0·57 in. wide by 0·31 in. thick. On both sides is carved the same design of chevrons, which was probably inlaid with a coloured paste. This design is very rare on the beads of Mohenjo-daro; indeed, it only appears on one other bead, which is broken.

No. 54 (see also Pl. CXXXVII, 104) is a roughly cut bead, round in section and evidently unfinished, with three oblique bands cut in relief upon it. It seems that it was intended to fill the spaces between these bands with a coloured paste.

No. 57 (see also Pl. CXXXVIII, 1). Once a fine steatite bead on which a trefoil pattern had been made with a 0·25 in. drill, to the depth of 0·03 in. In many of the trefoils which are irregularly placed and in the spaces between them, for the ground was also cut away, there remain traces of the red paste with which they were once filled.

No. 66 (see also Pl. CXXXVII, 97). Steatite bead with trefoil design and the ground between cut to the depth of 0·04 in., leaving the raised outlines an average width of 0·09 in. A chisel and not a drill was used upon this bead; its marks are still plainly visible. Traces of red here and there show that the design was inlaid with paste.

No. 67 (see also Pl. CXXXVIII, 2). A bead of fine white steatite with a design of trefoils that were cut with a 0·17 in. drill. In some of the lobes there remain traces of red pigment.

No. 71 (see also Pl. CXXXVIII, 3). Bead with trefoil pattern that was originally filled in with a red paste.

Plate CXXXVII.—No. 92. Steatite bead ornamented with longitudinal grooves, evidently intended to take an inlay of some kind.

No. 98. Steatite bead with a design of circles and vermiform lines left by cutting away the surface of the bead to the depth of 0·05 in. The design was originally inlaid with a coloured paste or pastes.

No. 99. An unusual bead of glazed steatite whose decoration may have been derived from the scarab beetle. The glaze has practically disappeared, but traces remain of green colouring.

No. 39 in Pl. CXXXVIII is a shell bead ornamented with two parallel lines cut with a saw. A hole, 0·1 in. in diameter, pierces one end of the bead and another hole, 0·2 in. in diameter and 0·48 in. deep, was drilled at right angles to, but does not meet it.

Tubular Denticulate Beads (*Pls. CXI, 22; CXXXVI, 56, 65; CXXXIX, 59, 60, 67*).

Quite a number of these very curious beads with toothed ends have been unearthed at Mohenjo-daro, made of shell, of faience, steatite, or a paste made of steatite. The hole is always large, and it may be that they were specially made to be strung on copper tubes, like the beads in Pls. CXI, 12; CXXXIX, 101. If so, they would have been so cut as to fit into each other, but the colours of adjacent beads would probably have presented a contrast in order to produce an ornamental effect. This type of bead has not been found in any other country in the East, but Beck has shown me two bone beads very similar in shape, but longer and thicker, from Normanton in England, which are dated to about 1,600 B.C.[1] The specimens that we illustrate average 0·56 in. in length and 0·65 in. in diameter, but some of larger size have been found, made of shell and alabaster and sometimes unbored (Pl. CIX, 39, 40).[2]

A variation of this type of bead is seen in Pls. CXI, 21; CXXXVI, 55, 64, with two tooth-like projections at each end instead of three or four. No. 55 in CXXXVI is made of a turquoise-blue, vitreous paste, and its hole is 0·11 in. in diameter. No. 64 in the same plate is a white paste that has lost its colour and glaze. Its hole is 0·14 in. in diameter.

Sickle-blade Beads (*Pls. CXXV, 12; CXXXIV, 3; CXXXVI, 25*).

Up to the present these beads have only been found in the upper levels at Mohenjo-daro. They have been termed sickle-blade beads because they closely resemble the flint sickle-blades commonly found in early sites in Sumer and less frequently in Egypt. In view of the rarity of these beads in India[3] and the considerable numbers found in Sumer, I have suggested elsewhere that they were importations into the former country or perhaps copies of imported beads; also that they were possibly fertility charms as sickle-flints were so closely connected

[1] *Museum Catalogue, Devizes*, No. 161. The catalogue suggests that these beads which are 1·9 ins. long and 1 in. in diameter were used as mountings for a handle of some implement, perhaps a staff or baton.

[2] *Cf.* also the large stone rings from Harappā: *Mohenjo-daro and the Indus Civilization*, pl. XIV, 6, 8.

[3] We have found only six specimens in all at Mohenjo-daro.

with agriculture.[1] In Sumer beads of this shape seem to have been made exclusively of shell,[2] whereas the specimens from Mohenjo-daro are steatite, shell or alabaster, and in the former material may perhaps have been copies of the imported beads.

No. 12 in Pl. CXXV (see also Pl. CXXXVI, 25) is a pale yellow steatite, and No. 3 in Pl. CXXXIV is shell.

Coiled Wire Beads and Imitations (*Pls. CXI, 14; CXXXVI, 13, 19; CXXXVII, 53, 55, 96; CXXXVIII, 16*).

These beads are of two kinds: those made of metal wire, and others made of pottery or some other material to imitate wire beads. Of the former, only one specimen has come to light as yet, and it is quite evident that beads of coiled wire were not much favoured at Mohenjo-daro, despite the fact that metal was not so scarce as to prohibit its use for this purpose. Yet, pottery beads which are evidently copies of wire beads are fairly frequent finds, though they are ill made and look home-made rather than the work of a professional bead-maker. I would suggest, though I can adduce no evidence in support of this suggestion, that the pottery beads of this type were made of some sacred earth and worn for their amuletic powers rather than æsthetic value to which they can lay no claim. Wire beads, either cylindrical or barrel-shaped, appear to be rare or do not occur at all in early Sumer, and apparently only at a considerably later date in Elam when they seem to have had a considerable vogue.[3,4] In Egypt, however, wire beads were fairly popular during the First and Fifth Dynasties,[5] and they have also appeared at Anau.[6] In Georgia beads have been found which resemble in shape the First Dynasty specimens of Egypt,[7] and cylindrical beads of coiled wire are also known in Hungary, where they date from the Bronze age.[8] We cannot, however, safely infer inter-racial connections from these finds, for such a device as coiled wire could easily have been invented quite independently.

No. 14 in Pl. CXI. Light red pottery; no slip. The grooves in this bead are not actually spiral.

Plate CXXXVI.—No. 13 (see also Pl. CXXXVII, 96) was made by coiling flat wire, 0·2 in. wide by 0·1 in. thick, leaving a hole 0·12 in. in diameter. The bead tapers slightly towards the ends which were carefully trimmed to present a flat surface.

[1] Mackay, "Further Links between Ancient Sumer and elsewhere," *Antiquity*, Dec. 1931, pp. 459-73.

[2] *Anthropology Memoirs*, Field Museum, Chicago, vol. I, pl. LX, figs. 39, 40.

[3] *Mém. Dél. en Perse*, t. VIII, p. 278. These beads are dated to the Bronze Age and come from *Tchila-Khâné*.

[4] *Cf.*, however, the paste spiral cylinder found at an early level at Susa, which was possibly derived from coiled wire. *Op. cit.*, t. XIII, p. 10, fig. 23.

[5] Petrie, *Arts and Crafts*, p. 85. J. de Morgan, *Préhistoire Orientale*, II, p. 206; III, p. 209. Brunton, *Qau and Badari*, II, pl. CII, 80.

[6] Pumpelly, *Explorations in Turkestan*, I, p. 150, pl. 40.

[7] *Ancient Egypt*, 1928, p. 57.

[8] From Szony: *Guide to Antiquities of Bronze Age*, British Museum (1920), p. 143, fig. 154.

No. 19 (see also Pl. CXXXVIII, 16). Drab-coloured pottery ; no slip. Hole 0·07 in. in diameter. Roughly made.

Plate CXXXVII.—No. 53. Pottery, with a light pink glaze. Roughly made.

No. 55. Drab-coloured pottery, no slip. Roughly made.

Segmented Beads (*Pls. CXI, 17–19; CXXXIV, 11; CXXXVI, 6, 18; CXXXVII, 54; CXXXIX, 50, 51, 53, 54*).

Segmented beads are somewhat more frequently found in the lower than in the upper levels. They are always made of faience or vitreous paste ; and they vary considerably in length, ranging from two segments to as many as eight,[1] the segments averaging 0·22 in. in diameter. Quite a number of these beads were found together with spacers and one terminal, so that we know how they were threaded (Pl. CXXXVI, 6).

Cog-wheel Beads (*Pls. CXI, 23, 24; CXXXVI, 69, 73, 81–84; CXXXVII, 57–59; CXXXVIII, 18, 19; CXXXIX, 52, 62–64, 71*).

In the first book on Mohenjo-daro this very obvious name was given to certain bead-like objects with a regular series of projections round the circumference like the cogs of a watch wheel. Owing, however, to the difference between the two sides, of which one was slightly rounded (Pl. CXXXVI, 69, 73) and the other ornamented with a circular ridge or groove (Pl. CXXXVI, 81), it is difficult to see how they could have been strung on a cord together or with other beads in such a way as to show the ornamental face. It seems more probable that they were made to ornament clothing, being sewn on like buttons, though their sharp points would have precluded their use as such.[2]

These cog-wheel shaped objects fall into three types :—

(*a*) One face flat and ornamented with an incised ring (Pl. CXXXVI, 81), the other face plain and slightly rounded.

(*b*) Both faces plain, and one flat, one slightly rounded (Pl. CXXXVI, 82, 83).

(*c*) Flat on both sides and roughly serrated (Pl. CXXXVI, 84).

Type (*a*) was by far the most popular. They were always made of faience or vitreous paste, and were found at all levels. When well preserved, those made of faience are bright blue in colour and those of vitreous paste apple-green ; but, in general, both the colour and glaze have disappeared. In No. 63 in Pl. CXXXIX, traces remained of a red pigment in the slightly incised ring, and it is quite likely that all were decorated in this way. The objects of this group vary in diameter from 0·6 in. to 0·98 in. and in thickness from 0·08 to 0·11 in. The regularity of their toothed edges suggests that they were all made in a mould.

[1] Beads of this type were probably made in long lengths which were cut as required. They were also liable to break into shorter lengths when being worn.

[2] A motif exactly similar to these ornaments occurs as a character in the Minoan script : Evans, *Palace of Minos*, I, p. 282, fig. 214.

Type (*b*) is nothing like so numerous as type (*a*), nor as a rule are the members of this group so well made. As in type (*a*), one side is rounded and one flat, but the latter is not ornamented in any way. The teeth are, moreover, not so sharp or long. These objects have been found as low as 33·4 ft. below datum and as high as, or even higher than — 3·6 ft. They are more generally made of faience than of vitreous paste, and some of them are coated with a shiny white glaze which may or may not have been coloured originally. They average 1·09 ins. in diameter and 0·21 in. thick. No. 64 in Pl. CXXXIX differs in being slightly flattened in the centre of the rounded face. It is covered with a now cream-coloured glaze.

Type (*c*) is rare and comes from a high level. The serrations are few and, moreover, cut diagonally. No. 84 in Pl. CXXXVI is made of a yellow paste which was formerly coated with a blue glaze.

Possibly these ornaments (beads ?) are solar devices and they almost exactly resemble some of the round motifs on the pottery (Pl. LXVIII, 21, 24). They were very likely regarded as possessing amuletic powers and, doubtless, on account of their blue colour, as efficacious against the evil eye. I have myself seen in Baghdad a cog-wheel bead not at all unlike those from Mohenjo-daro attached to a motor-car as a mascot. Somewhat similar beads are known from pre-dynastic Egypt,[1] and there is a dark-blue bead with a notched edge from Ur, but undated, in the Baghdad Museum. Five-pointed, star-shaped beads are well known from the Twelfth Dynasty of Egypt, and a seven-pointed marble bead of the Eneolithic period has been found at Remedello, Italy.[2]

Long Barrel-cylinder Beads (*Pls. LXXXII, 9, 10; CXI, 32, 40; CXXXVI, 9, 17; CXXXII, 44–7; CXXXVIII, 20; CXXXIX, 65, 72, 78*).

We have not found any carnelian beads of this type to equal in length some of those in the girdle found in the earlier excavations,[3] but the fine bead illustrated in Pl. CXXXVII, 47, which is 4·41 ins. long, is a very close second to them, being only some 0·44 in. shorter. This well shaped bead is a beautiful, deep red, translucent carnelian.

No. 9 in Pl. LXXXII (SD 3167) is 2·41 ins. long, and 0·32 in. in diameter in the middle and 0·25 in. at the ends. It is bright red and very translucent. The hole is remarkably well bored, the two parts of it meeting exactly. Locus: Surface.

No. 10 in the same plate (SD 2710), though bright red carnelian, unfortunately has several flaws. It is 3·05 ins. long, and is 0·35 in. and 0·25 in. in diameter at the middle and ends respectively. Locus: SD Area, Bl. 6, rm. 28. Level: — 1·1 ft.

No. 4 in Pl. CXXXVI is 4·08 ins. long, and practically perfect save for being found broken in two.

We must presume for the present that these long barrel-cylinder beads were manufactured in India, for none so long or so fine have as yet been found in any other country. The nearest to them in length are beads from Kish and Ur that

[1] From Hierakonpolis; now in the Ashmolean Museum, Oxford.

[2] Peet, *Stone and Bronze Ages in Italy*, p. 262, fig. 145.

[3] *Mohenjo-daro and the Indus Civilization*, pl. CLI, b.

at the outside are not more than 2·5 ins. long. Moreover, the beads from Sumer have a pronounced ridge in the middle, whereas those of the Indus valley swell more gently at this part.[1] That these barrel-cylinder beads were valued even when broken is shown by their being used in necklaces in this state, sometimes with the broken end rubbed down, and sometimes left rough. Strings *t* and *u* in Pl. CXXXV are composed of broken carnelian beads which were almost certainly still in use. We have found none of these long carnelian beads at a lower depth than —14·3 ft.; but similar beads in pottery occur as low as —23·1 ft., so that we are not justified in assuming that they were only made for and worn by the people of the later occupations.

Imitations of these beads in pottery (Pls. CXI, 40; CXXXVI, 9, 17; CXXXVIII, 20; CXXXIX, 65, 72) usually have a red slip. One, however, of vitreous paste (Pl. XXXVI, 9, now turquoise-blue, was possibly a rough attempt to imitate the stone known as plasma, for a long barrel-cylinder bead made of this stone was found in an earlier season.[2]

Long-Barrel Beads (*Pl. CXXXIV, 12, 13*).

The long-barrel bead, Pl. CXXXIV, 12, should not be confused with the barrel-cylinder type of bead. Barrel shaped beads as long as this one are very rarely found at Mohenjo-daro, and those that we have all come from the upper levels. No. 12 is a fine piece of clouded, white and yellow agate which is very translucent in places; and No. 13 is the same stone, but drab coloured and veined with white. This last bead, though otherwise entirely finished and polished, was left unbored.[3]

Disc Beads (*Pls. CXI, 1, 9, 11; CXXXIV, 10; CXXXVI, 1–3, 26, 31; CXXXVII, 60–72, 100; CXXXVIII, 5; CXXXIX, 29–33, 37–41, 47–49, 55–58; CXLI, 61*).

The commonest form of disc bead is that seen in Pls. CXI, 1; CXXXVI, 1, 2; CXXXVII, 68–71; CXXXIX, 29–32; CXLI, 61. It is found at all levels and is almost invariably made of steatite, steatite paste, or, rarely, shell. These beads vary considerably in size, ranging in diameter from 0·2 in. (Pl. CXXXVI, 1) to 0·8 in. (Pl. CXXXIX, 31) and in thickness from 0·02 in. to 0·28 in. The thinnest might be termed wafer beads (Pls. CXXXVI, 1, 2; CXLI, 61, centre). Shell beads of this type are generally larger, *e.g.*, Pl. CXXXIX, 29, is 1·63 in. in diameter and 0·15 in. thick, and No. 33 in that plate is 0·89 in. in diameter and 0·5 in. thick. This latter bead has two shallow grooves on one side only, and it may have been used to ornament a garment. On No. 10 in Pl. CXXXIV there is a circular groove round the hole on one face, which was perhaps inlaid with a coloured paste. A fine hole through the edge in addition to the central hole certainly lends support to the suggestion that this was a dress ornament rather than a bead.

[1] Frankfort illustrates a long, barrel-cylinder carnelian bead which in shape is not unlike those of the Indus Valley culture. It has, however, a pronounced ridge. *Iraq Excavations of the Oriental Institute*, 1932-33, fig. 29.

[2] *Mohenjo-daro and the Indus Civilization*, p. 511.

[3] It might perhaps be a weight, though we have hitherto found no weights of this type so small. Weight 5·800 gms.

It is difficult to understand how the very thin wafer beads were made. Presumably they were sliced from a rod of steatite, but, if so, exceptional skill must have been required to avoid breaking them.[1] A saw was certainly used to cut No. 30 in Pl. CXXXIX, for its two faces show the marks of the tool distinctly and the cuts were made in various directions.[2] Some of these wafer beads have very minute holes, and it was found impossible to thread some of them even with a fine needle. Possibly they were strung on a coarse hair. I think the majority of them were glazed, but very few now show any evidence of either glaze or colour. Disc beads of this type were very common in ancient Egypt from Badarian times onwards, but more generally they were made of shell and various stones. I have seen none so thin as those from Mohenjo-daro. In Sumer this particular type of bead has apparently not yet been found.

The disc beads of the much less common variety which has either a rounded or a sharp edge (Pls. CXXXVII, 64–7; CXXXIX, 37, etc.) are sometimes a considerable thickness, and many of them have bi-conical holes. Usually this thicker type of bead is made of pottery, and two have been found of yellow and white limestone respectively. They are unearthed at all levels. No. 3 in Pl. CXXXVI (see also Pl. CXXXVII, 77) is square and is a very clumsy, ugly bead.

Of the small disc beads of hard stone with a median ridge we have found but few examples. No. 61 in Pl. CXXXVII and No. 57 in Pl. CXXXIX are both carnelian. In each the hole is bi-conical, and in the latter so minute that the bead must have been very difficult to thread. This bead also bears traces of the minute flaking by which it was shaped. Nos. 55 and 56 in Pl. CXXXIX are both of quartz, with their holes bi-conical; and No. 56 has the peculiar glossy appearance now associated with quartz beads that have been glazed.[3] Both these beads were found at very low levels. They were copied in the Late Period in either vitreous paste or glazed steatite (Pl. CXXXVII, 60, 62), with little difference in shape save that the hole is not bi-conical. The gold bead, No. 26 in Pl. CXXXVI, strongly resembles these smaller disc beads, but was made by soldering two domed pieces of metal together; its grey core has swollen and partially split it.

The remarkable bead illustrated in Pl. CXI, 11 (see also Pl. CXXXIX, 45) is made of faience with a once blue glaze upon a light yellow paste. It is 1·72 ins. in diameter with a hole 0·65 in. in diameter, and the edge is carefully fluted. This bead was found in association with one of the nine skeletons in Block 10A.[4]

We are now well acquainted with a form of disc bead, averaging 1·06 ins. in diameter and always made of pottery, which sometimes has a pattern incised on its median ridge (Pls. CXXXVI, 11; CXXXVII, 63; CXXXVIII, 5: CXXXIX, 48, 49). These beads are more or less carefully made of either light red or drab-coloured clay, but they never have a slip. Their large holes which average 0·51

[1] Small disc beads of similar type, glazed and very fragile, have been found in the "A" cemetery at Kish: *Anthropology Memoirs*, Field Museum, Chicago, vol. I, p. 184.

[2] It is probable that some of the thinnest of these beads were rubbed down after being sawn; the faces of most of them show the marks of an abrasive.

[3] See p. 499.

[4] *Cf.* pp. 116-8.

in. in diameter are usually bi-conical, despite the fact that there would have been no difficulty in boring the hole straight through. They occur at all levels and are perhaps the most common type of pottery bead at Mohenjo-daro. Since these beads never had a slip or were otherwise ornamented than with incised lines, I am inclined to think that they were perhaps made of some sacred earth and were worn as charms. I can find no reference anywhere to sacred earth being made up into beads, but Dr. J. H. Hutton informs me that certain Arab tribes take earth from a grave and make it into beads for the purpose of attracting a partner of the opposite sex. We have, of course, no means of ascertaining whether this practice obtained in ancient Sindh; but it would explain why pottery-beads were so numerous at Mohenjo-daro and in general so ill made.[1]

Long Tapered Beads, Round in Section (*Pls. LXXXII, 8; CXI, 13, 44, CXXXIV, 17; CXXXVI, 22, 23, 32, 33; CXXXVII, 79–82; CXXXVIII, 9; CXXXIX, 42–4*).

The beads of this type fall into two groups, plain and fluted:

(*a*) The *plain* tapered beads average 0·7 in. long and are sometimes graduated very gently, sometimes very abruptly. They are nearly always made of faience or steatite; but one is gold and another (Pl. CXXXVII, 81) some hard black stone, semi-polished. How these beads were worn is not known; probably they were paired, and threaded with the wider ends together.

No. 33 in Pl. CXXXVI (see also Pl. CXXXVII, 82) which is made of steatite may be a terminal, for it has two small holes at the broader end in communication with one at the smaller end. In addition, there are two holes opposite one another near the apex of the bead.

No. 32 in Pl. CXXXVI, also of steatite, has a longitudinal hole, 0·14 in. in diameter, and on one side three small holes in a line, each 0·1 in. in diameter, communicating with the first hole. These two beads were probably especially made to support some form of pendant.

A tapered, cylindrical gold bead (SD 3132) of unusual length (Pl. LXXXII, 8) is 0·7 in. long by 0·1 in. in diameter at one end and 0·05 in. at the other. The hole which perforates it is minute, and the bead shows no signs of lapping or soldering. Locus: SD Area, alley bet. Bls. 6 and 8. Level: exactly datum.

(*b*) The *fluted* tapered beads which are very common in the upper levels are nearly always made of faience or vitreous paste; when made of steatite or some other stone, they were grooved lengthways to give them a fluted appearance, the grooves being fine in some cases and in others very large and coarse. The faience specimens appear to be moulded. In No. 44 in Pl. CXI (see also CXXXIX, 43), which is made of dark-coloured steatite and had been coated with an alkali in the same way as the seals to produce a fine, glossy, white surface, the longitudinal grooves were cut with a saw.

[1] If beads were thus made for this particular or an allied purpose, they would in all probability have been made at home by the gatherer of the sacred earth, perhaps with certain rites.

Faceted Beads (*Pls. LXXXII, 5 ; CXXXIV, 2*).

The gold bead (SD 3220) (Pl. LXXXII, 5) is a most unusual shape. It is 0·59 in. long by 0·28 in. wide and thick, and was found threaded on a piece of copper wire. It has a core of some kind which, unfortunately, cannot be examined without mutilating the bead. The facets show no signs of lapping or soldering, and they are almost mathematical in the exactness of their shapes and angles.[1] Locus: SD Area, Bl. 6, rm. 33. Level: – 1·5 ft.

The bead (DK 3242) illustrated in Pl. CXXXIV, 2, is an almost exactly similar bead, but made of white steatite with evidence here and there of a green glaze.

These are the only two specimens of this type of bead yet found and they come from the upper levels. I do not know of faceted beads of this type in the ancient East until Roman times when they were fairly common in Egypt. There are several strings in blue glass in the Edwards Collection, University College, London.[2]

Cylindrical Beads (*Pls. CXI, 33; CXXXV, 22; CXXXVII, 73, 74, 76; CXXXVIII, 13; CXXXIX, 35, 36, 98*).

Cylindrical beads are not very often found, with the exception of the type seen in Pl. CXXXVIII, 13, which is characterised by the very large hole. This variety of cylindrical bead appears to have been made of faience only. They range from 1·2 ins. to 0·7 in. in length and in diameter from 0·4 to 0·5 in.; nor are they confined to any particular level. Their holes average 0·37 in. in diameter and they must have been threaded on very thick cords. Both the beads of this type that we illustrate were overfired and are dark grey.

We find occasional specimens of the long, thin, glazed bead (Pl. CXXXIX, 35) that is such a feature of the Sumerian and Egyptian civilizations at all periods; and they were clearly nothing like so common in ancient Sindh as in those two countries. Our only lapis-lazuli bead (Pl. CXXXVII, 76) is of this type, from which fact in conjunction with the rarity of the stone at Mohenjo-daro, I infer that the bead was an importation from Sumer, where cylindrical beads of this stone were common about 2,600 B. C.[3] Beads of this type are equally rare in other stones. No. 33 in Pl. CXI is black agate veined with white, and No. 74 in Pl. CXXXVII a brownish-red and white breccia with both ends of its hole counter-sunk. Perhaps this latter bead was once capped with gold at either end. No. 98 in Pl. CXXXIX is steatite painted over with a bright red slip, leaving a white spiral line in imitation of etched carnelian. In Pl. CXXXV, 22, a number of these cylindrical beads is seen, all of them made of steatite and formerly glazed.

Unclassified Beads.

We have unearthed a large number of beads of types which did not appear in the earlier excavations, and a brief description follows of some of the most unusual of them, excluding those which have already been described above.

[1] I have no doubt that solder marks could be seen under a microscope.

[2] Found in a Roman grave at Illahûn.

[3] Woolley, *The Royal Cemetery*, pl. 135.

No. 58 in Pl. CXXXVI (see also CXXXVIII, 8) is a very distinctive bead, longitudinally ribbed and with a moulded collar at each end. A similar bead from an upper level (Pl. CXXXIV, 9) was, like No. 58, made of faience, and both are still apple-green in colour. Owing to their rarity—they are the only two beads of this type that we have found—they may be importations, though I cannot trace them to any other country of the ancient East with the possible exception of Egypt.[1]

Plate CXI.—The row of globular beads in No. 2, Pl. CXI, which were all found together, are roughly made of a light pink pottery with no slip, and they vary slightly in size. Lightly incised lines round the circumference of each bead served to decorate them, and from their irregularity and roughness of make it is reasonable to infer that they were home made.[2]

No. 8 (see also Pl. CXXXIX, 99) is a most unusual bead. Made of steatite and stained to imitate etched carnelian, it must have been a very distinctive ornament. It is only 0·15 in. thick and the curved upper and lower edges are almost sharp, the single hole following the curve of the bead. The great difficulty that would be involved in cutting a curved hole like this inclines me to think that this bead was made of a steatite paste rather than cut from the stone, though it has the surface appearance of steatite.[3] There is a fine onyx bead of very similar shape, dated to the Twelfth Dynasty of Egypt, in the Edwards Collection at University College, London ; and Koldewey illustrates somewhat similar onyx beads from Merkes, Babylon.[4] Certain others unearthed at Kish and Ur have not yet been published.[5]

No. 27 (see also Pl. CXXXIX, 70) is an unusually large steatite bead, 2·18 ins. long, with patches of light green glaze.

No. 45 is a tapered bead, triangular in section, made of steatite, on which there are traces of now colourless glaze. The hole is 0·1 in. in diameter. Two beads of this type were found with a number of other beads in a copper canister of Late date (Pl. CXVIII, 18) (see also Pl. CXXXV, 19, G, Nos. 33 and 39 down on the right).

Plate CXXXIV.—No. 1 superficially resembles a bead illustrated in the first book on Mohenjo-daro,[6] but that specimen is half-round in section whereas our later find is round. It is made of steatite, with a groove around its centre, 0·13 in. wide and 0·02 in. deep, doubtless to take a coloured paste.

No. 4, which is faience, is, I think, an attempt to represent a pipal leaf. It bears the same design on both sides and is pierced at the base of the leaf with a blind hole, 0·24 in. deep. Traces remain of a turquoise-blue glaze.

[1] A type of bead not unlike this one, but with oblique ribbing, is known from Qau in Egypt : Brunton : *Qau and Badari*, II, pl. CII, 80, b. See also beads of very much the same type from Mahasnah, Egypt, dated to the Sixth Dynasty.

[2] These seem to be copies of a bead that was common in Sumer : Woolley, *The Royal Cemetery*, pls. 132, 144.

[3] Owing to its perfect condition, its interior cannot be examined.

[4] *Excavations at Babylon*, p. 263, fig. 185.

[5] But again, see *The Royal Cemetery*, p. 372, fig. 79.

[6] *Mohenjo-daro and the Indus Civilization*, pl. CXLVI, 35.

No. 5 is a bobbin-shaped bead of light blue faience. It is not unlike a tiny jar-stand (Pl. LVII, 16) and could conceivably have been used to mount one of the minute faience vessels that are found at Mohenjo-daro.

No. 14 is a curious bead of steatite, with a flat back fluted all round and with a shallow recess in the middle of the face, doubtless to take a coloured inlay. There is no trace of glaze.

Plate CXXXVI.—Nos. 14 and 15 are pottery beads of a shape quite new to us. Roughly made of a light red paste with no slip, they are by no means beautiful. They average 0·78 in. in diameter and 0·22 in. thick, and their holes were very clumsily pierced.

No. 27 is a poorly made pottery bead, elliptical in section, covered with a red slip.

No. 36 is a similar bead but rather longer and deep cut at either end by the friction of the cord. It evidently saw a long period of use.

Plate CXXXIX.—No. 61. Pinkish pottery with traces of a red slip. This curious bead with a prominent median ridge and drawn out, attenuated ends is so far unique.

No. 91 is a spherical ball of faience bearing very evident traces of purple glaze. Small holes, each 0·1 in. in diameter, pierce it in three directions. We are well acquainted with this type of ball made of shell (Pls. CVI, 15 ; CXLII, 65), but this is the finest that we have found made of faience and pierced in this manner, probably for use as a bead. The holes are surrounded by incised circles.

No. 94 is a lozenge-shaped faience bead made of a yellow paste coated with a glaze that is now white. This type of bead which is decidedly rare at Mohenjo-daro is known in Sumer at both Kish and Ur—at the latter site in the royal tombs cleared by Woolley.[1] Carnelian beads of similar shape were also made in Egypt in the Twelfth Dynasty,[2] and lozenge[3] shaped beads with an incised decoration are known in both clay and stone at sites in central and northern Syria, and also at Nāl in Balūchistān[4]—a very considerable geographical range.

No. 97 is a cylindrical, faience bead, yellow in the middle and with slightly, broader ends of purplish-black. It had been badly overfired.

Spacers (*Pls. CXI, 46, 51, 52 ; CXXI, 38, 39 ; CXXXIV, 20–23 ; CXXXVI, 6, 29, 30, 39–43 ; CXXXVIII, 21–33 ; CXXXIX, 102, 108–12*).

Spacers of various kinds were in common use, the shape most favoured being the plain tablet (Pl. CXXXVIII, 21–4) of steatite or steatite paste, perforated with two or three holes, but never more. One very rare example of this variety of spacer is made of faience (Pl. CXXXVIII, 22) with a beautiful turquoise-blue glaze. These spacers were probably all glazed, but few of them now show any trace of it, and if so, it is usually green. Despite the clumsy appearance of this

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXLVI, 35.

[2] *Museum Journal*, Philadelphia, vol. XX, Nos. 3 and 4, pl. V.

[3] A specimen is to be seen in the Ashmolean Museum, Oxford.

[4] Hargreaves, *Mem. Arch. Surv. Ind.*, No. 35, pl. XV (*a*).

type of spacer, they probably looked quite well when separated by beads and worn on the person.[1] They appear to have been in use throughout the history of the city, for one has been found at the low level −23 ft. These tablet-spacers are sometimes by no means accurately cut, which is somewhat surprising in view of the attention that was paid to the accurate shaping of the beads. No. 20 in Pl. CXXXIV is unusual in that it has a rounded back, and half one side of No. 26 in Pl. CXXXVIII is decorated with a roughly incised design. The holes through these spacers are usually ample in size, averaging 0·12 in. in diameter.

A variety of spacer that is not quite so common, but is nevertheless found at all levels, is seen in Pls. CXI, 46; CXXXIV, 22; CXXXVI, 6; CXXXVIII, 30, 32, 33; CXXXIX, 109, 111. These are made of either pottery or faience, and sometimes show a lack of finish. They have from three to five holes and are considerably narrower than the tablet-shaped spacers just described.

No. 22 in Pl. CXXXIV, which is faience, is unusual in that one face is serrated. It is now white though probably originally blue.[2]

No. 111 in Pl. CXXXIX has one side ribbed, but it is not so well cut as No. 22. The slight traces of glaze that survive are now cream-coloured.

A third variety with a comparatively thin front (Pls. CXI, 51, 52; CXXI, 38, 39; CXXXIV, 21; CXXXVI, 42, 43; CXXXVIII, 31; CXXXIX, 108), were made of copper or bronze, and also very frequently of pottery, sometimes coated with a red slip. Much more rarely they were made of faience—perhaps because faience spacers of this shape and thinness would be very liable to break. The copper and bronze spacers are generally thin slips of metal, sometimes plain and sometimes with wavy edges, as in Pl. CXXXIX, 108.

An uncommon variety of spacer (Pls. CXXXVIII, 25; CXXXIX, 102, 112) takes a simple, bead-like form with two fine holes. They are all steatite, the first and last, white with slight traces of now colourless glaze, and the second with an apple-green glaze. They have been unearthed at levels ranging from 5·5 to 20·4 ft. below datum.

Other unusual spacers are illustrated in Pls. CXXXIV, 23; CXXXVI, 29, 39–41; CXXXVIII, 27, 28, 32a.

Plate CXXXVI.—No. 29 (see also Pl. CXXXVIII, 27) is a round spacer of steatite, which is very slightly domed on both faces, with a portion removed round the rim of each face. A slight, circular depression, 0·5 in. in diameter, in the centre of the obverse was perhaps intended to take a piece of inlay or coloured paste.[3] The small holes are each 0·05 in. in diameter.

No. 39 is a slightly smaller spacer of the same material and pattern, *i.e.*, with a portion of the rim removed on both sides and a shallow round cavity, 0·51 in. in diameter, in the obverse.[4] The two holes, which are 0·11 in. apart, are each 0·08 in. in diameter.

1 Heavy lapis-lazuli spacers not unlike these in shape were found in the "A" graves at Kish: *Anthropology Memoirs*, Field Museum, Chicago, vol. I, pl. XLIII, fig. 8.

2 *Cf.* a spacer found at Badari: Brunton, *Badari*, II, pl. CIV, 95, F.

3 This seems to have been done with some kind of centre-bit, whose point left a shallow pitting in the centre of the bead.

4 Unfortunately, the wrong side of each of these two spacers was photographed.

No. 40 is a triangular spacer of great interest, made of white steatite and comparable with another of the same type and material illustrated in Pl. CXXXIV, 23. Both these spacers were formerly glazed, and the latter still retains some traces of the original green or blue colour. This form of spacer, both in gold and lapis-lazuli, was found in considerable numbers in the royal tombs at Ur where they were used alternately to form a narrow necklace.[1] Possibly at Mohenjo-daro also these two-holed spacers were strung with others of the same type instead of being used to separate two rows of beads. Up to the present they have been found in the upper levels only.

No. 41 (see also Pl. CXXXVIII, 28) is a circular steatite plaque, on whose obverse are scored several concentric grooves, each 0·02 in. deep, to take a coloured paste inlay. This spacer whose back is plain is pierced by two holes, each 0·07 in. in diameter.

No. 32a in Pl. CXXXVIII is a disc-like spacer of grey steatite with no trace of glaze. It is unique in that it is perforated by two holes at right angles that meet in the middle of the disc.

Terminals (*Pls. CXI, 49, 50; CXXXIV, 24; CXXXVI, 6, 33, 45–47; CXXXVIII, 34–40; CXXXIX, 104–7*).

The most common form of terminal is the triangular one made of gold,[2] copper or bronze, faience, vitreous paste or steatite; the last, however, is rather rare, and copper and bronze were the most favoured materials.

Plate CXI.—No. 49 (see also Pl. CXXXIX, 105) is made of copper, and is 1·93 ins. across by 1·17 ins. wide by 0·23 in. thick. It is hollow and was beaten out from a single thin piece of metal, for it bears no sign of a joint anywhere. At the top is a hole 0·19 in. in diameter. This terminal shows much wear. At one time, a plate with a series of holes to take the separate strings was set in the open side of this terminal; and after passing separately through the plate the strings were passed all together through the hole at the apex and then knotted.

No. 50 (see also Pl. CXXXIX, 104) is of steatite, with a fine white glaze as on the seals. Its four holes, each 0·07 in. in diameter, meet at the apex, and the two faces are heavily grooved between the holes.

No. 24 in Pl. CXXXIV is a turquoise-blue, vitreous paste. It differs somewhat from the other terminals described in that it has a partially hollow interior, in which a thin rod may have been fitted, to which the strings were tied as suggested in the case of No. 47 in Pl. CXXXVI below.

Plate CXXXVI.—No. 6 is a roughly made, flat, hemispherical terminal of light blue faience, solid save for the four holes that have a single exit in common at the apex of the terminal.

No. 45 (see Pl. CXXXVIII, 36) is a white steatite terminal, of the same shape as No. 6, with no trace left of glaze. It is solid and along its straight edge there are five holes, each 0·08 in. in diameter, which meet in the interior of the

[1] Woolley, *The Royal Cemetery*, pls. 144, 145. They have also been found at Tell Asmar by Frankfort who dates them to about 2,600 B. C.

[2] *Mohenjo-daro and the Indus Civilization*, pl. CXLIX.

terminal, as shown in the line drawing, and have a common exit at its apex. Both faces of this terminal are slightly grooved to a short distance from the straight edge inwards.

No. 46 (see Pl. CXXXVIII, 35) is grey steatite with a thick white surface layer. Its four holes are each 0·08 in. in diameter and join as shown in the line drawing. It resembles No. 45 in general structure, even to the short grooves running inwards from the straight edge; but it is triangular in shape.

No. 47 (see also Pl. CXXXVIII, 34) is a copy of a metal terminal made in a blue, vitreous paste. Owing to the fragility of the material of which it is made, it is solid save for a large hole, 0·18 in. in diameter, tapering to 0·1 in. at the apex of the terminal, and a deep groove, 0·15 in. wide and 0·18 in. deep, along the straight edge. This groove was evidently intended to take a thin rod to which, as in No. 24 in Pl. CXXXIV, the strings of beads were attached; the rod would have been held firmly in the groove when the strings had been passed through the terminal and knotted on the outside.

No. 37 in Pl. CXXXVIII, which is vitreous paste now white in colour, is solid save for three holes averaging 0·04 in. in diameter, which run from the straight edge to a common exit.

Nos. 106 and 107 in Pl. CXXXIX are two faience terminals whose glaze is now white. The first was intended for use with a single string of beads; whereas the second has a deep groove in its base to take a thin rod as in the others of this type already mentioned.

Terminals of this hemispherical shape are well known in ancient Egypt from the Fourth[1] to the Eighteenth Dynasties, sometimes taking a lotus shape in the last named period.[2] I have also seen solid faience terminals of Fourth Dynasty date from Byblos, in the Beirut Museum, Syria, of the same flattened hemispherical shape but with transverse holes along the straight edge, to which the strings were tied instead of their being passed through the terminal. I do not know of the actual occurrence of this type of terminal in Sumer, but they are depicted in association with strings of beads on some painted sherds from Tépé Douecya in Persia found by de Mecquenem.[3] [4]

Terminals other than the flattened, hemispherical type are very rare.

No. 33 in Pl. CXXXVI (see also Pl. CXXXVII, 82), made of white steatite, is a truncated cone in shape with two small holes, each 0·07 in. in diameter in its wider end, communicating with a tapering hole in the smaller end. There are also two small holes opposite one another in the side of this terminal near the smaller end.

Plate CXXXVIII.—No. 39 is a round, bead-like terminal of shell with a hole, 0·2 in. in diameter and 0·48 in. deep, in the middle of one side of it, meeting a hole at right angles that traverses the head completely, but rather to one

[1] *Illust. Lon. News.*, Feb. 21, 1931, p. 296. A gilt-copper specimen from Abu Shalbiyeh, Egypt, dated to the Sixth Dynasty, now in the Edwards Library, University College, London, is exactly like some from Mohenjo-daro.

[2] Frankfort, *Journ. Eg. Arch.*, vol. XV, pl. XXVII.

[3] *Antiquity*, Dec., 1931, pp. 462-3.

[4] *Mém. Dél. en Perse*, t. XX, p. 113, f, 19 (6-9).

side instead of centrally; the diameter of this latter hole is 0·1 in. This curious terminal has two parallel grooves round it for ornament that were cut with a saw.

No. 40 is a long, white steatite terminal, with traces of green glaze and half-round in section. The two holes in its base converge to meet in a hole, some 0·25 in. in diameter, at its smaller, rounded end.

Pendants (*Pls. CXI, 3, 53; CXXXIV, 7; CXXXV, 8; CXXXVI, 34; CXXXVII, 11–13; CXXXVIII, 4; CXXXIX, 86, 95, 103*).

Pendants, as distinct from amulets and certain objects shortly to be described, are far from common; unless ordinary beads were threaded as pendants, or they were made of perishable materials, such as leather seeds or the like, we must assume that they were not much favoured at Mohenjo-daro,[1] though there were several in hoards of jewellery found prior to 1927.[2] A form which has only appeared in the upper levels is seen in Pls. CXXXVI, 34 (see also Pl. CXXXVIII, 4) and CXXXIV, 7. The former is faience, whose glaze has disappeared leaving yellow stains here and there, and the latter is of shell.

No. 3 in Pl. CXI, a ring of light red pottery with no slip, was carefully made and suspended by a hole in a lug. It is the first pendant of this shape to be found.

It is difficult to decide from the evidence at present available whether the curious objects illustrated in Pls. CXI, 53; CXXXVII, 11–13; CXXXIX, 86, 95, 103, were worn as pendants or whether they served some other purpose. They are always the same shape and were made of a black stone which has been pronounced to be chiefly composed of hornblende and is best termed an amphibolite.[3] They vary little in size, ranging from 0·45 in. to 1·1 ins. in height, the latter being an exceptional size. There is always a carefully cut groove round the neck, evidently intended to take a thread or wire, though no trace of the latter has been found in the now numerous specimens that have been unearthed. As they have occurred in at least one hoard of jewellery it is natural to assume that they were used as pendants, even though they are so various in size (Pl. CXXXV, 8). They seem unlikely to be gamesmen on account of the groove below the head, which would have been purposeless if so; nor are they likely to have been used as weights for the same reason. They are found at all levels, but more frequently in the later strata.

Amulets (*Pls. LXXI, 14; LXXIV, 6, 9, 10; LXXVII, 8, 9, 12, 13, 20; LXXXII, 3, 7; CVII, 6; CXI, 10; CXXXVI, 74, 75, 80, 92; CXL, 34; CXLII, 1, 2, 4*).

The few amulets in the shape of animals are described in Chapter IX on the Figurines and Model Animals. No. 10 in Pl. CXI (DK 9008) is a figure, 1·19 ins. long, in faience, of a couchant ram that still shows traces of a blue glaze on

[1] *Yet they appear quite commonly on the pottery figurines.*

[2] *Mohenjo-daro and the Indus Civilization*, pls. CXLVIII; CXLIX.

[3] *Op. cit.* See remarks by Sir Edwin Pascoe on p. 526, n. 2.

a body of yellow paste. The workmanship is rough and certain features are merely represented by incised lines. A minute hole, 0·05 in. in diameter, passes longitudinally through this little figure.

The minute human figure (SD 3008) of white steatite, illustrated in three positions in Pl. LXXXII, 7, and also described in the chapter on the Figurines and Model Animals, was evidently an amulet and may have been sewn to the clothing. Its present length is 0·58 in. This figure wears curling ram's horns at the sides of the head and there is a long, wide mass apparently of plaited hair hanging down the back. It is the first human figure used as an amulet that we have found. Locus: SD Area, Divinity St., bet. Bl. I and Stūpa mound. Level: +1·7 ft.

Two amulets whose shape is quite new to us are illustrated in Pl. CXXXVI, 74, 75; and both are of Late date. No. 74 (DK 11269), which is 1·12 ins. high by 0·53 in. wide by 0·3 in. thick, is rather roughly made of a yellowish-white paste, and has two small lugs or projections at the top, each pierced with two minute holes for suspension. A portion of this amulet is missing, namely, a ring-like projection on one side which is perfect in the similar amulet, No. 75. Locus: Bl. 15, ho. III, rm. 10. Level: – 6 ft.

No. 75 (DK 8309) in the same plate (see also Pl. CVII, 6), which is perfect except that a small part is missing at the top, is 1·2 ins. high by 1·1 ins. broad, including the ring, and 0·33 in. thick. It is made of white steatite with no trace of glaze or colour. Apart from the ring at the side, this object bears a superficial resemblance to the Egyptian sign for stability (dād).[1 2] That this object was meant to be suspended is proved by the presence of four small holes in pairs at the top, each just large enough to take a good-sized thread. The two sides are alike, and the amulet is fairly well cut and in all probability was once glazed or had been intended to be glazed. Locus: Bl. 8, ho. I, rm. 8. Level: – 11·9 ft.

The number of the holes may perhaps have been intended to obviate the risk of loss, perhaps to enable the amulet to be suspended in such a way that it would not twist.

A most interesting bead amulet (SD 2732) of limestone (Pl. LXXXII, 3), 1·25×0·75×0·75 ins. in size, has an irregular hole, averaging 0·23 in. in diameter, roughly bored from both ends. On one side there are inscribed a svastika (counter clockwise)[3] and a coil pattern not unlike the one on the pottery amulet, Pl. XC, 23 (a), and a twist pattern on the seal of Lugal-anda, patesi of Lagash.[4] There can be no doubt that this twist motif had some religious or talismanic significance, especially as it is associated with the svastika, a well known sign to ensure

[1] Petrie, *Amulets*, p. 15, pl. III.

[2] Gardiner, *Egyptian Grammar*, p. 489. This sign is now generally thought to represent a lopped tree, and it was a favourite amulet in Egypt from the Sixth Dynasty onwards, and especially in the Eighteenth Dynasty.

[3] This symbol is arranged both ways at Mohenjo-daro.

[4] King, *Sumer and Akkad*, p. 174, fig. 52.

luck in both ancient and modern India and also elsewhere.[1] In Chinese Turkestān coil patterns without any end have the meaning of "longevity", and possibly the same interpretation was attached to the similar patterns of Mohenjo-daro.[2] [3] A well known pattern in heraldry called the "lacy knot," which probably had an eastern origin, is in some ways not unlike the one on this amulet. Locus: SD Area, Main Street, bet. Bls. 8 and 10. Level: +2·4 ft.

No. 92 in Pl. CXXXVI (DK 10021) seems more likely to have been sewn to the clothing than suspended from a necklace. It is 1·1 ins. long by 0·86 in. wide by 0·19 in. thick, and is made from a piece of shell with both sides rubbed down flat. The knot at the top is of particular interest and it is on its account that I think this object was an amulet. In many ancient as well as in modern countries the knot was regarded as a charm. Fraser states that "its influence is maleficent or beneficent according as the thing it impedes or hinders is good or evil".[4] In some countries, as, for instance, Egypt, knots were avoided as much as possible,[5] whereas in others, *e.g.*, Assyria[6] and perhaps the Indus valley, they were a favourite charm. A knot worn on the person, as this amulet was evidently worn, was doubtless regarded as efficacious in the warding off of evil; being carved of shell, moreover, it was a permanent charm as it could never be untied.[7] This object was very carefully made, the edges even of the two holes were carefully rounded off so that they should not cut the thread that secured it. Locus: West St., bet. Bls. 15 (V) and 18 (rm. 96). Level: — 2·6 ft.

Bullae.

A certain class of objects that I now regard as amulets rather than mere ornaments is illustrated in Pls. LXXI, 14; CXXXVI, 80; CXL, 34; CXLII, 1, 2, 4. These objects which are found at all levels are thin, circular plaques of pottery with two holes at the top, which may have been threaded on necklaces or worn suspended on the forehead. The obverse in some cases is ornamented by pricking with a point in such a way as to suggest stitching; the reverse is always plain. I have before suggested that the prototype of these pottery objects may have been an amulet-case made of two pieces of leather sewn together and that the case itself eventually came to be regarded as an amulet and was later reproduced in pottery.[8]

No. 14 in Pl. LXXI (SD 3074). Light red clay; no slip. Diameter 1·7 ins.; thickness 0·2 in. Single line of pricking round edge of obverse. Two holes for suspension. Very roughly made. Locus: SD Area, Bl. 1, rm. 19. Level: +1·7 ft.

[1] For other examples of this symbol, see *Mohenjo-daro and the Indus Civilization*, p. 374. Also pls. LXXXVI, 172; LXXXVIII, 320; XCI, 1; XCVIII, 619, 624; CII, 1, of this book. In Sanskrit, the word *svastika* has the meaning "object of well-being" Brown, *Swastika*, pp. 17, 18.

[2] Stein, *Serindia*.

[3] Defoe states that a twist pattern was used by some as a preventive against the plague in England: *Journal of the Plague Year* (Dent), p. 38.

[4] *Taboo and the Perils of the Soul*, p. 310.

[5] "Knots"; M. A. Murray, *Ancient Egypt*, 1922, pp. 14-19.

[6] Campbell Thompson, *Assyrian Medical Texts*.

[7] For the use of the knot as a charm against plague, see again Defoe, p. 37.

[8] *Mohenjo-daro and the Indus Civilization*, pp. 533-4, pl. CXXXIII, 2, 3.

No. 80 in Pl. CXXXVI (DK 12287). Light red clay; no slip. Diameter 1·51 ins.; thickness 0·17 in. Obverse irregularly pricked all over. Two holes for suspension. Locus: Bl. 23, ho. I, rm. 4. Level: – 8·8 ft.

No. 34 in Pl. CXL (DK 12495). Drab-coloured clay; no slip. Diameter 1·5 ins.; thickness 0·19 in. Obverse irregularly pricked all over and the holes filled in with a white substance which may be a natural deposit of lime or gypsum from the soil. This object was broken anciently and two fresh holes were bored near the broken top so that it could be used again. Locus: Bl. 6A, rm. 35. Level: – 10·4 ft.

Plate CXLII.—No. 1 (DK 4886). Drab-coloured clay; no slip. Diameter 1·4 ins.; thickness 0·2 in. Obverse ornamented with two lines of pricking round the edge. Before boring the two holes at the top, the maker had thickened this area with a small strip of clay. Locus: Bl. 11, ho. III, rm. 34. Level: – 15·3 ft.

No. 2 (DK 6731). Light red pottery; no slip. Diameter 1·6 ins.; thickness 0·12 in. Two rows of pricking round the edge of the obverse, which had a round, flat pellet added in the centre before being baked. Two holes for suspension. Locus: Bl. 9, ho. VII, rm. 17. Level: – 14·4 ft.

No. 4 (DK 9647). Drab-coloured clay; no slip. Diameter 1·38 ins.; thickness 0·19 in. Obverse roughly and irregularly pricked all over; reverse plain and roughly finished. Two holes for suspension. Locus: Fore Lane, bet. Bls. 1 and 10 (I). Level: – 28·8 ft.

It will be seen from these examples that there is very little variation in size; but three are pricked only round the edge of the obverse and three irregularly all over it. They are all made of somewhat coarse clay with no slip, and cannot have been regarded as of aesthetic value. There is the remote possibility, of course, that they were once painted, but I cannot think that all traces of paint would have entirely disappeared. The white deposit in the pittings of No. 34 in Pl. CXL is, I think, fortuitous. We may, therefore, safely infer that these objects were carried as amulets and not solely as ornaments.

Two very interesting bird amulets (Pls. LXXIV, 9, 10; LXXVII, 12; CXXV, 19) are fully described in Chapter IX on the Figurines and Pottery Animals. No. 19 in Pl. CXXV (see also Pl. LXXIV, 9, 10) which is made of glazed paste resembles a chalcedony dove, with its hole pierced vertically, from Tomb IV, at Mochlos; and other amulets of the same type are known from Early Cycladic interments.[1] We are, however, not certain whether the dove or the hawk is represented by our two bird amulets, but, as we have as yet no definitely identified representation of a hawk in Indus Valley art and models of doves are found in plenty, we may for the present infer that these two amulets represent doves.[2]

Amulets made of actual shells are not uncommon (Pls. CXI, 65, 70, 83; CXLI, 41, 42, 45, 51), but we have found no model shells used as amulets as in early Sumer and pre-historic Egypt. The species represented among the natural

[1] Evans, *Palace of Minos*, I, p. 102.

[2] A finely made bird in jasper from Warka and now in the British Museum is in conception very like the amulets from Mohenjo-daro; Zervos, *L'Art de la Mesopotamie*, pl. 96.

shells will be found in Chapter XVI on Ivory, Shell, Faience and Other Objects of Technical Interest. All are marine shells from the Indian Ocean or Persian Gulf. The holes by which these shells were threaded were bored wherever convenient; in shells with pointed spires the latter were cut off short for this purpose.

Jewellery Hoard (*Pl. CXXXV*).

Since 1926, when Rai Bahadur Daya Ram Sahni found the magnificent hoard of jewellery in the HR Area which so well supplemented the finds of Mr. K. N. Dikshit in a former season, we have not come upon a hoard of similar importance. On Pl. CXXXV, however, is illustrated a collection of jewellery and other objects, of which some are of exceptional interest for technical reasons. This collection was found in a copper canister (Pls. CXVI, 3; CXVIII, 18) which in turn had been placed in a large bronze vessel (Pl. CXVI, 7). The latter together with other jars and various tools and implements was unearthed in room 28 of house VI, Bl. 15, at the level 7·1 ft. below datum (Pls. X, h; XIII, C). Some of these objects have already been described in various chapters; for instance, Nos. 1–3, 5, amongst the beads. The importance of this collection as a group, however, calls for their illustration and description as such.

Nos. 1, 2 and 5 (DK 11337, j). Composite bead, already described earlier in this chapter (pp. 503–04).

No. 3 (DK 11337, g) (see also Pl. CXXV, 5). Enlarged photograph of carnelian bead, already described amongst the etched carnelian beads (p. 505).

No. 4 (DK 11337, o). Piece of thick silver foil, now 1·2 ins. long by 0·9 in. wide by 0·22 in. thick. Owing to its very brittle state this fragment cannot be unrolled. It is probably a fillet to be worn around the forehead, and three rows of punch dots along its lower edge may have been made to stiffen it or, more likely, as ornamentation.[1]

Nos. 6, 14, 15, 16, 17 and 20 are pieces of lump silver which had been flattened out ready for working. Of these No. 14 is of especial interest since it had been partially severed with a chisel and then snapped into two. These six fragments are photographed on the same scale as No. 4.

No. 7 (DK 11337, q) is a badly bent silver cone, 1 in. high by 1 in. estimated diameter and thickness about 0·2 in. There is a loop of wire inside the apex of this cone to secure it,[2] probably on the head, as very similar cones are worn in this way by the women of the Panjāb.[3] [4] This ornament is badly corroded.

[1] This method of ornamentation is also seen on fillets of the Early Dynastic Period in Sumer. It has also been observed in Egypt, for Petrie and Quibell illustrate two bands of thin sheet copper ornamented with zig-zag lines of punch-dots, dated to the Proto-dynastic Period, which may have been forehead ornaments: *Nagada and Ballas*, p. 48, pl. LXIV, figs. 100, 101.

[2] There is the same loop for attachment in certain hollow, hemispherical objects of the Early Bronze Age in Hungary: Childe, *The Aryans*, p. 124.

[3] *Cf.* a gold cone found in a previous season: *Mohenjo-daro and the Indus Civilization*, Pl. CXLVIII, A. 2.

[4] Certain objects of shell (Pls. LXXI, 5, 6; CV, 42; CVI, 27; CIX, 34; CXXV, 28) described as Shell Cones in Chapter XII, on Household Objects, Tools and Implements, may perhaps be ear or head ornaments when hemispherical in shape, and head ornaments when conical.

Mention might here be made of No. 89 in Pl. CXXXVI (DK 11818), a cone of similar shape, but made of pottery with no slip or decoration. 0·72 in. high by 1·22 ins. in diameter. In place of the loop inside, this latter cone has two holes, each 0·07 in. in diameter, close to one another on the slightly splayed edge. Locus: Bl. 21, ho. I, rm. 1. Level: – 8 ft.

No. 8 (DK 11337, ac). Four pendants (?) made of a variety of hornblende, varying from black to very dark grey in colour, the longest of them 0·7 in. high by 0·25 in. in diameter at the base. Already mentioned earlier in this Chapter in the section on Pendants (p. 522).

No. 9 (DK 11337, s). A silver barrel-shaped bead, 0·5 in. long by 0·35 in. in diameter, made of thin foil over a core; five silver cones, the largest 0·43 in. high by 0·65 in. in diameter, each with a wire loop inside the apex. The edges of all these hollow cones are, like that of No. 7, bent slightly outwards to stiffen as well as to seat them well.

No. 10 (DK 11337, v) (see also Pl. CXVI, 4). Copper awl, 3·78 ins. long, made of a square rod, 0·12×0·12 ins. in section, which gradually rounds towards the somewhat abrupt point. Rather roughly made.

No. 11 (DK 11337, j) is a light grey, gritty pebble, some 1×0·81×0·42 ins. in size, which may be a weight or touchstone.

No. 12 (DK 11337, j) is a flat, dark grey pebble, some 1·4×0·39×0·39 ins. in size, which appears to be of igneous origin. May have been a weight or a touchstone. Neither of these pebbles was weighed as they were badly corroded by the solution used to remove the incrustation from the canister in which they were.

No. 13 (DK 11337, p). Bracelet of silver foil over a core which has now disappeared. Some 1·68 by 1·52 ins. in size, and 0·25 in. in section.

No. 18 (DK 11337, m). A small, irregular piece of sheet gold which had been bent double, and had had the edges cut with a pair of shears that were none too sharp. This fragment still retains a certain amount of spring.

No. 19 (DK 11337, g, h, u, t). As the original threading material had long since disappeared, these beads had to be divided up more or less arbitrarily into four strings. String g consists mostly of jasper, agate, and carnelian beads. The central bead of etched carnelian is reproduced enlarged as No. 3 in the plate. Another etched carnelian, the twentieth bead from the right hand end of the string, has linked concentric circles and is comparable with some found in Mesopotamia, a point discussed earlier in this chapter. String h is made up of beads of jade, agate, shell, hornblende, carnelian, breccia, and one bead of a hard, opaque, olive-green stone which may be either plasma or jasper. Two of the beads in this string are triangular in section and slightly tapered, as is another bead (Pl. CXI, 45) from an early stratum.

Strings t and u consist of odd, long barrel-cylinder beads most of which had been broken, and which in several cases had had the broken edges rubbed down to make them serviceable again.

Most of the beads in these four strings were badly damaged by the solution of caustic soda used to clear and separate out the vessel that contained them.[1]

[1] This vessel was found adhering fast to others in the same group, as is seen in Pl. X, (*h*).

The carnelian especially had suffered from some chemical action; the colour was entirely removed in several cases so that the beads now look as though they had been accidentally burnt. And it seems to me possible that the carnelian beads which we occasionally find with the colour gone or curiously streaked with opaque white patches may have undergone a similar chemical reaction in the soil.

No. 21 (DK 11337, f) is a chert weight of the usual type, $0 \cdot 6 \times 0 \cdot 6 \times 0 \cdot 5$ ins. in size. Weight now 6·3730 gms. Its surface also was attacked by the cleaning solution, so that its weight must be somewhat reduced.

No. 22 (DK 11337, i). The central bead of this short string is gold, the remaining beads copper or bronze, jasper and steatite. Those of steatite are very minute, cylindrical in shape, and still bear traces of glaze, but with very little colour.

The two groups of beads in Pl. CXLI, 61, were not found together. The central, smaller string (DK 12805) is made up of a number of very thin, glazed steatite disc beads, well graded, and an average of 0·3 in. in diameter and 0·02 in. thick. Now white in colour they were probably once blue or green. Their very minute holes make them difficult to thread and it is possible that a hair was used for this purpose. Locus: Bl. 9, ho. XI, rm. 72. Level: – 10·4 ft.

The beads of the longer string (DK 12651) are nothing like so well made or graduated. They also are all made of steatite, and they average 0·3 in. in diameter by 0·09 in. thick, with the holes some 0·08 in. in diameter. Like the beads of the shorter string, though now white in colour, they were probably glazed either blue or green. Locus: Bl. 29, ho. I, rm. 1. Level: – 10·4 ft.

Bead moulds.

Though beads of faience and vitreous paste were manufactured at Mohenjo-daro as proved by the finding of unfinished specimens, we have not yet come upon the moulds in which they were made. These latter, however, need not necessarily have been made of pottery; a hard, close wood would have served the purpose and may have been used. If so, the lack of moulds would be accounted for; except in one of two rare cases wood has entirely perished or only survived in the form of charcoal.

Colours.

The great majority of beads were glazed, and in most cases where the colour is preserved it is blue. The importance attached to this colour as a specific against the evil eye is of wide extent in the East and many parts of Southern Europe to-day, and we may safely assume that the same was true in ancient times. Blue was probably so regarded by the ancient peoples of South America also, seeing that turquoise was so commonly used by them for the making of personal ornaments. Blue, as Hornblower has pointed out, has been for countless generations the emblem of a mother-goddess,[1] and it is possible that it owes its supposed efficacy against the evil eye to its being connected with a goddess who seems to

[1] *Ancient Egypt*, June 1932, pp. 47-53.

have been almost universally worshipped from time immemorial as "Queen of Heaven" and "Divine Mother"; the wearing of blue ornaments would have placed the wearer under the special protection of the Great Goddess. Though other colours also have their values against maleficent influence, blue is, except in modern India, predominant in this respect. In India, as I have already mentioned elsewhere, red appears to have greater virtue. If the Indus Valley civilization was confined to the north-west of India and Balūchistān,[1] we must provisionally suppose that many of its beliefs were influenced by the peoples in the west, and it is certain that blue or a greenish-blue was the colour most favoured for beads at Mohenjo-daro, though red comes a close second.[2]

Head Ornaments (*Pls. CV, 22, 42 (?); CXXIV, 30; CXXV, 28 (?); CXXXV, 7*).

No. 22 in Pl. CV (DK 5498) (see also Pl. CXXIV, 30). A copper cone, 1·55 ins. high by 2·0 ins. in diameter, which has a hole 0·05 in. in diameter in place of the usual loop inside the apex. Of beaten work and very well made. Locus: Bl. 2, ho. IV, rm. 15. Level: — 11·8 ft.

The silver cone in Pl. CXXXV, 7, that is very similar in shape has already been described in this chapter (p. 526), amongst the other objects in that plate.

The half of a shell cone illustrated in Pl. CV, 42, and again in line in Pl. CXXV, 28, is fully dealt with in the chapter on the Household Objects, Tools and Implements (p. 430), where I have suggested that it was worn on the top of the head in a similar manner to metal ornaments worn by Panjābi women at the present day.

Fillets (*Pl. CXXXV, 4 (?)*).

No fillets have been found since 1927, save the rolled-up piece of silver (Pl. CXXXV), already described, which owing to its fragility cannot be uncoiled.

Finger-rings (*Pls. CXXI, 35; CXXXVI, 87, 88; CXXXIX, 14; CXL, 45, 48–52, 55; CXLII, 10–12, 16–18; 22*).

Finger-rings are found in considerable numbers from the lowest levels upwards and are nearly always copper or bronze. A very unusual steatite ring was unearthed at a very low level and also one made of faience. The copper or bronze rings fall into two types:—(*a*) Simple bands of round or strip wire, and (*b*) rings of spirally coiled wire, which seem to have been even more popular than Type (*a*).

Type (*a*).—No. 87 in Pl. CXXXVI (DK 10266). Badly bent copper band, 0·2 in. wide by 0·02 in. thick. Side 0·45 in. in diameter inside (estimated). Locus: Bl. 1, court III, rm. 1. Level: — 16·8 ft.

[1] Concrete evidences of the extension of this civilization into the Ganges Valley may eventually be found but this, in my opinion, will not be the case. It is difficult to suppose that it covered so great an area, though its influence may have done so.

[2] It should, however, be observed that red glazes were not favoured, and we have found but one example (Pl. CVI, 14) of a spindle-whorl glazed this colour (p. 417). The only reds were those of carnelian and the red slip used to make imitation carnelian beads by painting or staining steatite or steatite paste.

Plate CXL.—No. 48 (DK 3527). Slightly flattened copper wire, 0·2 in. broad by 0·6 in. thick. Size: 0·5 in. in diameter inside. Locus: Long Lane, bet. Bls. 7 (IV) and 8. Level: — 8·7 ft.

No. 49 (DK 3343). Roughly hammered, round copper or bronze wire, 0·18 in. in diameter. Size: 0·52 in. in diameter inside. Locus: Bl. 8, ho. I, rm. 6. Level: — 2·8 ft.

Plate CXLII.—No. 10 (DK 5595). Slightly flattened, round copper or bronze wire, 0·15 in. in diameter, with overlapping ends. Size: 0·7 in. in diameter inside. Locus: Bl. 1, ho. VII, rm. 3. Level: — 16·2 ft.

No. 11 (DK 6315).—Round copper wire, 0·18 in. in diameter inside, with overlapping ends. Size: 0·6 in. in diameter inside. Locus: Bl. 7, ho. VIII, rm. 21. Level: — 13·5 ft.

No. 22 (DK 7117). Round copper or bronze wire, 0·14 in. in diameter. There is no sign of a join and this ring was probably cast. Size: 0·63 in. in diameter inside. Locus: Bl. 1, court III, rm. 1. Level: — 16·8 ft.

Type (*b*).—No. 35 in Pl. CXXI (DK 8071). Three coils of almost rectangular, copper or bronze wire, 0·2×0·12 in. in section with rounded edges. Size: 0·55 in. in diameter inside. Locus: Lane bet. Bls. 2 and 3. Level: — 15·6 ft.

No. 88 in Pl. CXXXVI (DK 10193). Double coil of flattened wire, 0·23 in. wide by 0·12 in. thick, which from its colour appears to be bronze. Size: 0·47 in. in diameter inside. Locus: First St. (30). Level: — 4·5 ft.

Plate CXL.—No. 45 (DK 5726). Double coil of copper or bronze wire, 0·08 in. in diameter. Size: 0·65 in. in diameter inside. Its two ends do not pass one another in the second coil. Locus: Bl. 9, ho. VII, rm. 51. Level: — 10·5 ft.

No. 50 (DK 3411). Four coils of copper or bronze wire, 0·8 in. in diameter. The ends of the wire are turned inside the coils. Locus: Bl. 7, ho. V, rm. 79. Level: — 6·4 ft.

No. 52 (DK 4030). Five coils of round copper wire, 0·12 in. in diameter, slightly flattened by wear. The ends of the coils are not concealed. Size: 0·7 in. in diameter inside. Locus: Bl. 6, ho. III, rm. 15. Level: — 10·2 ft.

No. 55 (DK 3428). Three coils of copper or bronze wire, 0·18 in. in diameter. Size 0·67 in. in diameter inside and 0·3 in. wide. Locus: Bl. 7, ho. V, rm. 63. Level: — 7·3 ft.

Plate CXLII.—No. 12 (DK 5802). Double coil of slightly flattened, copper or bronze wire, 0·2 in. wide by 0·11 in. thick. Size: 0·6 in. in diameter inside. Locus: Bl. 1A, rm. 89. Level: — 19·6 ft.

No. 17 (DK 5484). Double coil of wire, 0·23 in. in diameter, which had been roughly rounded by hammering from a square strip of metal. Size: 0·6 in. in diameter inside. Locus: Bl. 1A, rm. 87. Level: — 15·9 ft.

No. 18 (DK 6515). Seven coils of copper or bronze wire, 0·08 in. in diameter, which had been slightly flattened inside and outside the ring by wear. Size: 0·6 in. in diameter inside. Locus: Bl. 1, ho. IV, rm. 26. Level: — 17·9 ft.

No gold or silver rings were found in the excavations of 1927-32, and no gold and only one silver ring prior to 1927.[1] Rings of coiled silver wire are well known in Sumer of contemporary date, very similar in form to the copper and bronze ones of Mohenjo-daro, [2] [3] and it is possible that there was some religious or other objection among the Indus Valley people to the wearing of silver as rings for it was by no means a rare metal. Indeed, more of it has been found in various forms than of gold and it would seem that the people of Mohenjo-daro had access to larger supplies than the ancient Egyptians who valued it above gold.[4]

Rings of other materials include :—

No. 14 in Pl. CXXXIX (DK 8498) (see also Pl. CXLII, 16). Steatite with a trefoil pattern carved in relief, the interiors of the lobes having first been drilled.[5] It has already been stated that this trefoil pattern appears to have been a sacred motif, and it is possible that this ring was worn by a priest or in the performance of some ritual. A ring of this material would not have stood hard everyday wear. Size: 1·45 ins. in diameter outside and 0·69 in. inside. 0·63 in. wide. Locus: Bl. 10, ho. I, rm. 11. Level: — 22 ft.

No. 51 in Pl. CXL (DK 10499). A unique faience ring, made of a light yellow paste with slight traces of a green glaze. Fluted on the outside. Size: 1·6 ins. in diameter outside and 0·7 in. inside. 0·65 in. wide. Locus: Bl. 8A, rm. 36. Level: — 2·2 ft.

Earrings.

No objects that can definitely be pronounced to be earrings have been found in the more recent excavations, though in all probability earrings were commonly worn, perhaps by men as well as women, as in India to-day.[6] Nor is their absence surprising, since they are not likely to be accidentally lost.

Nose-rings.

None of the pottery or stone figurines are represented as wearing nose-rings, and we must presume for the present that they were not worn by the people of Mohenjo-daro, though nose-plugs may have been. According to K. N. Chatterjee, nose ornaments are non-Indian in origin and were unknown in India before the early Mediæval Period when the Muhammedan invasion was responsible for their

[1] *Mohenjo-daro and the Indus Civilization*, pl. CXLVIII, A, 13. Also *Antiquity*, Dec., 1931, pp. 464-5.

[2] *Anthropology Memoirs*, Field Museum, Chicago, vol. I, pls. XX, 18 ; XLIII, 9.

[3] Spiral gold rings were also found in a shaft grave at Ur : Woolley, *Antiquaries Journal*, vol. XII, p. 368. Also Woolley, *The Royal Cemetery*, pl. 219, where they are said to be hair-rings.

[4] For possible localities where silver could be obtained, see Sir Edwin Pascoe's chapter in *Mohenjo-daro and the Indus Civilization*, pp. 675-6.

[5] The sunken portions of this ring were probably once filled in with a coloured paste as on the beads and other objects upon which this motif appears.

[6] For a definite earring, see *Mohenjo-daro and the Indus Civilization*, pl. CXLII, 11. Some of the pottery figurines are represented as wearing earrings.

introduction.[1] This appears to me to be a somewhat sweeping statement seeing that nose ornaments are so universally used by primitive peoples. I cannot but think that the fact that nose-rings are not mentioned in Sanskrit literature is an insufficient reason to assume that they were not worn in many parts of India in early times. At the present day in India, especially in the hills, two kinds of nose ornaments are worn by women, sometimes at the same time: namely, a stud set in one side of the nose and a ring or disc hung from the septum.

Studs for nose (?) or ears (*Pls. C, 12; CXXXVI, 90, 91; CXXXIX, 5; CXL, 42, 43, 46, 61; CXLII, 5*).

A peculiar form of stud, always made of faience and found at all levels, must have been used either as a nose or an ear ornament. It generally bears the divided-circle design so familiar to us on the pottery, which design probably had some talismanic value. A motif not unlike it is known on pottery of the First Period of Susa [2] and a yet closer design appears on a royal gaming-board from the Temple Repository at Knossos.[3] I have not as yet been able to trace it elsewhere.[4] The stud consists of a disc with a small plain knob at the back (Pl. CXXXIX, 5), and as a rule was very carefully made. As nose ornaments are not represented on the pottery figurines and stone statues at Mohenjo-daro and Harappā, it must be assumed for the present that these objects were ear ornaments; whether worn on one or both the ears we do not know, for two have never been found together. A stud of very similar shape made of chrysocolla, found in a Middle Neolithic deposit at Knossos, is comparable in general shape with those used by the Indus Valley people.[5]

No. 12 in Pl. C (DK 5704). Diameter of head 0·71 in. and of boss at back 0·31 in. Thickness 0·42 in. Faience, with no trace left of colour. Locus: Long Lane, bet. Bls. 10 and 12. Level: – 16·9 ft.

Plate CXXXVI.—No. 90 (DK 12204). Diameter of head 0·76 in. and of boss 0·31 in. Total thickness 0·4 in. Faience, now grey green. Locus: North of Bl. 13, rm. 7. Level: – 6·3 ft.

No. 91 (DK 11780). Diameter of head 0·83 in. and of boss at back 0·31 in. Total thickness 0·5 in. Moulded in grey paste; no trace of colour left. Locus: Bl. 27, ho. I, rm. 4. Level: – 8·5 ft.

Plate CXL.—Nos. 42 and 43 (DK 4221). Diameter of head 0·85 in. and of boss at back 0·43 in. Carefully moulded in faience, with no trace of colour left, except for a loose red pigment in the interstices of the design. Locus: Bl. 2, ho. I, rm. 8. Level: – 9 ft.

[1] *Journ. Asiatic Society of Bengal*, vol. XXIII, p. 290.

[2] *Mém. Dél. en Perse*, t. XIII, pl. XI, fig. 3.

[3] Evans, *Palace of Minos*, I, pl. V, p. 262 (*h*).

[4] But see Petrie, *Beth Pelet*, pl. LIII, fig. 538. An early pottery figurine of a deity, in the British Museum, appears to be wearing ear ornaments of exactly the same design: Zervos, *L'Art de la Mésopotamia*, pl. 144.

[5] Evans, *Palace of Minos*, I, p. 55, fig. 15 (*b*).

No. 46 (DK 5366). Diameter of head 0·69 in., and of boss 0·3 in. Total thickness 0·3 in. Faience now light yellow. Locus : Bl. 1, ho. I, rm. 13. Level : – 11·1 ft.

No. 61 (DK 4668). Diameter of head 0·85 in., and of boss at back 0·35 in. Total thickness 0·4 in. This stud is unusual in that the pattern is not the stereotyped divided circle ; it, moreover, has a hole, 0·09 in. in diameter, right through it from front to back. Locus : Bl. 9, ho. VI, rm. 79. Level : – 6·1 ft.

No. 5 in Pl. CXLII (DK 8991) (see also Pl. CXXXIX, 5). Diameter of head 1 in., and of boss at back 0·21 in. Total thickness 0·55 in. Faience, with no trace of colour left. Locus : Bl. 1, court III, rm. 1. Level : – 19·9 ft.

It will be seen from the dimensions of these studs that the hole in the ear or nose to take them must have been of considerable size. They were all made with the head as thin as possible so as to lie snugly against the lobe of the ear or the wing of the nostril.[1] No. 42 in Pl. CXL, which still bears traces of a red pigment used in combination with the blue or green of the original glaze, must have been a very gay ornament in its original state. The hole through No. 61 in the same plate is difficult to account for as it could have been of no use in securing the stud to nose or ear, nor is it of sufficient size to lighten its weight. Possibly, an ornamental boss, perhaps of gold, was affixed to the stud by means of this hole.

Ear-studs and earrings may have had an Asiatic origin for they are said not to appear in ancient Egypt until after the middle of the Eighteenth Dynasty ;[2] they were certainly worn in Sumer in very early times.

A curious object (DK 10507) whose use we do not know is illustrated in Pls. CV, 27 ; CVII, 17. It has a flat base and a slightly conical top, and is 1·42 ins. in diameter by 0·38 in. thick. A groove round its edge, V-shaped in section, is 0·02 in. wide and 0·05 in. deep. The material is a hard, black stone with a smooth but not high polish. Possibly this was an ornament which was suspended from the head or body by means of a wire or thread passed round the groove. Not many of these objects were found, and more frequently in the upper than in the lower levels. Some are illustrated in the first book on Mohenjo-daro [3] Locus : Bl. 8A, rm. 36. Level : – 2·1 ft.

Bracelets and Bangles (*Pls. CXV, 4 ; CXXXV, 13 ; CXXXVI, 85, 86, 93–8 ; CXXXIX, 24–8 ; CXL, 47, 53, 56–8, 60, 62, 64, 65 ; CXLII, 7–9, 13–15, 19–21, 23–6*).

Bracelets (or anklets, for some may have been worn on the legs) were made in metal, faience, shell or pottery, under which heads they are described below :—

Metal-bangles.—Metal is one of the most favoured materials for bracelets and anklets, whether copper, bronze, or silver.

[1] The boss at the back, however, was never made as thin as it might have been, perhaps for strength.

[2] *Camb, Anc. Hist.*, II, p. 421.

[3] *Mohenjo-daro and the Indus Civilization*, p. 526, pl. CXLVII, 30, 34–6. They seem to be associated with jewellery in some way.

Gold.—Only one gold bangle (DK 12012) (not illustrated) has been found since 1927, so badly broken that it could not be photographed or drawn to scale; indeed, only about a third of it remains. It was made from a hollow tube, 0·1 in. in diameter, inside which traces remain of a substance that looks like lac. Size: 1·5 ins. in diameter inside (estimated). Locus: Bl. 19, rm. 9. Level: – 4·5 ft.

Silver.—The solitary silver bangle unearthed is illustrated in Pl. CXXXV, 13, and has already been described with the other objects in that plate (p. 527).

Copper and Bronze.—Plate CXXXVI.—No. 86 (DK 10781, s). One of seven bracelets (see also. Pls. CXV, 4; CXXXVI, 95, 96) found with a large hoard of copper and bronze implements and utensils in the northern portion of the DK Area. Flattened copper wire, slightly rounded on the outside and flat on the inside, and an average of 0·3 in. wide by 0·19 in. thick. Badly bent and out of shape. Ends slightly tapered. Locus: Bl. 14, ho. III, rm. 19. Level: – 4·8 ft.

No. 95 (DK 1081, s). Thick, stout copper wire, some 0·36 in. in diameter, which had been slightly flattened on one side on an anvil. Ends very slightly tapered. Size: 2·43 ins. by 1·88 ins. inside. One of four rings of this type found together (for another, see Pl. CXV, 4). Locus: Bl. 14, ho. III, rm. 19. Level: – 4·8 ft.

No. 96 (DK 10781, s). A companion ring to No. 86 above; about the same size and make.

No. 97 (DK 10617). Copper rod, 0·3 in. in diameter, very slightly squared on an anvil. Size: 2·2 ins. by 2·5 ins. outside. Locus: Bl. 18, rm. 48. Level: – 5·6 ft.

No. 98 (DK 10611). Oval copper wire, 0·25 in. wide by 0·2 in. thick. Ends slightly fined down. Size: 2·3 ins. by 1·73 ins. outside. Locus: Bl. 9, ho. IX, rm. 87. Level: – 4·5 ft.

Plate CXXXIX.—No. 24 (DK 7283). Round copper wire, 0·15 in. in diameter, fining down gradually to ends which are apart. Size: 1·59 ins. in diameter inside. Locus: Bl. 9A, ho. V, rm. 75. Level: – 16·6 ft.

No. 26 (DK 7089). Half-round copper wire some 0·26 in. by 0·21 in. in section. Size: 3·85 ins. greatest width outside. Locus: Fore Lane, bet. Bls. 1 and 10 (I). Level: – 19 ft.

No. 27 (DK 6868). Copper rod, 0·31 in. in diameter. Tapered ends. Size: averages 2·55 ins. outside diameter. Locus: Long Lane, bet. Bls. 10A and 11. Level: – 18·2 ft.

No. 28 (DK 6868). Made of thick copper rod, 0·4 in. in diameter (average). Tapered ends. Size: 2·55 ins. in diameter outside. Locus: Long Lane, bet. Bls. 10A and 11. Level: – 18·2 ft.

Nos. 27 and 28 were found together with two others not in such a good state of preservation.

Plate CXL.—No. 53 (DK 4733). Round copper wire, 0·3 in. in diameter, with the ends overlapping some 1·2 ins. Size: 2·08 ins. in diameter inside. Locus: Bl. 10, ho. III, rm. 64. Level: – 5·7 ft.

No. 60 (DK 3457). Half-round copper wire, with the flat side inside. Ends only slightly tapered. Size: 2·5 ins. diameter outside. Locus: Bl. 7, ho. IV, rm. 72. Level: — 7·7 ft.

No. 62 (DK 3457). Thick, half-round copper wire, 0·3 × 0·25 in. in section. Ends slightly fined and almost touching. Size: 2 ins. in diameter inside. Found with No. 60 above. Locus: Bl. 7, ho. IV, rm. 72. Level: — 7·7 ft.

No. 64 (DK 5278). Roughly rounded copper wire, 0·14 in. in diameter. Ends almost touch. Size: 1·05 ins. in diameter inside. Locus: Bl. 1, ho. V, rm. 42. Level: — 8·4 ft.

Plate CXLII.—No. 14 (DK 7774) (see also Pl. CXXXIX, 25). Made from a stout rod, 0·44 in. in diameter, which judging by its colour is bronze; perhaps cast. Ends taper slightly but do not meet. Size: 1·32 ins. in diameter inside. Locus: Long Lane, bet. Bls. 10A and 11. Level: — 21·1 ft.

No. 20 (DK 8958) Half-round copper wire, 0·29 in. thick and 0·32 in. wide, with the flat inside. Somewhat bent and out of shape. Ends slightly fined down. Size: 1·95 ins. by 1·85 ins. inside. Locus: Bl. 1, court I, rm. 21. Level: — 18·3 ft.

No. 21 (DK 7432). Round copper wire, 0·07 in. in diameter. Very badly corroded, so that there is no sign of overlap or join. Size: 1·3 ins. by 0·95 in. inside. Locus: Bl. 3, ho. III, rm. 36. Level: — 17·3 ft.

No. 23 (DK 8488). Round copper wire, 0·25 in. in diameter. Closely meeting square-cut ends. Size: 1·5 ins. in diameter inside. Locus: Bl. 7, ho. VIII, rm. 53. Level: — 18·1 ft.

Faience and Vitreous Paste.—*Plate CXL.*—No. 57 (DK 3419). Fragment, 0·4 in. wide by 0·35 in. thick. Blue vitreous paste, decorated on the outside with an incised chevron pattern. Size: 2·3 ins. in diameter inside (estimated). Locus: Bl. 7, ho. VI, rm. 60. Level: — 3·1 ft.

No. 58 (DK 3381). Fragment of a bracelet with one side slightly bent in, as in certain bracelets found prior to 1927.[1] This curious kink, whose purpose it is difficult to see, also occurs in bracelets of late date from Mesopotamia[2] and in certain Cypriote bangles dated to about 500 B. C.[3] It is seen in certain gold bracelets from Susa (Achaemenian Period).[4] I have not been able to trace this curious bend in bracelets of early date in the above or other countries, and it is possible, therefore, that it originated in India and gradually spread as far as Cyprus, where bracelets of this type were perhaps imported specimens.

The fragment that we illustrate is white paste with no trace of glaze left. It is 2·55 ins. long and 0·45 in. by 0·4 in. in section, and it is heavily ribbed transversely on the outside.[5] Locus: Fore Lane, bet. Bls. 1 (III) and 7. Level: — 6 ft.

[1] *Mohenjo-daro and the Indus Civilization*, pls. CXLIV, 9; CLXIV, a, b.

[2] *Harcourt-Smith*, Babylonian Art, pl. 76.

[3] *Illust. Lond. News*, Nov. 9th, 1929, p. 807.

[4] *Mém. Dél. en Perse*, t. 8, pl. V.

[5] Similar ribbing or fluting is to be seen on bone bracelets from Knossos, dated to the end of the sixteenth Century, B. C.; Evans, *Palace of Minos*, III, p. 409. See also a bracelet of the Danubian Period VI, from Odering: Childe, *Danubian Civilization*, pl. VIII, fig. F. 3.

No. 9 in Pl. CXLII (DK 7411). Fragment, 1·22 ins. wide by 0·3 in. thick, of a broad strap bracelet of an apple-green vitreous paste. Seems to have been oval in form; estimated outside diameter 2·2 ins. Locus: Long Lane, bet. Bls. 10A and 11. Level: — 19·4 ft.

Pottery.—A peculiar type of bracelet frequently found in both the upper and lower levels is made of pottery, so hard baked that it can better be described as stoneware (Pls. CXXXVI, 93, 94; CXL, 65; CXLII, 7, 8, 19, 24–6). These bracelets are usually black or chocolate-brown on the outside,[1] and on the inside either dark or light grey. They are always hard baked right through and are very brittle in consequence. Only a few of these objects need be described, as they are all so much alike. They are round with one exception that is slightly oval, perhaps through being warped in the kiln. In outside diameter they range from 3·14 to 3·6 ins. and from 2·08 to 2·5 ins. inside. In section they are oval, averaging 0·65 in. thick by 0·51 in. wide, or they have a slightly flattened inner face which runs to a blunt edge on the outside. Occasionally, pictographic characters are very carefully incised on these bracelets, on one side only. These characters in most cases are so small that they can only be seen with some difficulty. In fact, it is hard to identify some of them at all without first rubbing in a little white paint. I imagine that these bracelets must have been supposed to have some magical or religious significance. The great majority are extremely well finished, with a smooth, and in some cases a semi-polished surface. They all appear to have been made on the wheel.

Plate CXXXVI.—No. 93 (DK 10098). Fragment. Dark grey throughout. Locus: Bl. 23, ho. I, rm. 1. Level: — 3·3 ft.

No. 94 (DK 6133). Light grey inside and purplish brown outside. Beautifully made and finished. Locus: Bl. 4, rm. 8. Level: — 18·4 ft.

No. 65 in Pl. CXL (DK 11613). Dark grey stoneware with black surface. Well made; smooth but not polished. Locus: Bl. 18, rm. 102. Level: — 6·3 ft.

Plate CXLII.—No. 7 (DK 8109). Light grey inside, dark brown outside. One small incised pictograph, No. lxxxix in Smith and Gadd's list.[2] Locus: Bl. 7, ho. III, rm. 51. Level: — 16·2 ft.

No. 8 (DK 7103). Grey stoneware. Four small pictographs (as in the photograph) incised on one side. Locus: Fore Lane, bet. Bls. 1 and 10 (I). Level: — 18·9 ft.

No. 19 (DK 7386). Vitreous grey ware, with black surface. Eight-shaped sign lightly incised on one side: No. ccxvii of sign list.[3] Locus: Bl. 7, ho. VIII, rm. 20. Level: — 14·6 ft.

Nos. 24 and 25 (DK 6198). Slate-grey inside, reddish-purple outside. Locus: Bl. 4, rm. 8. Level: — 20·4 ft.

No. 26 (DK 8912). Light grey stoneware. Very well made; smooth but not polished. Locus: Bl. 1, court I (73). Level: — 19·5 ft.

A bracelet of this type (DK 6430) which is not illustrated is grey inside and purplish-black outside. Two characters incised on one side: No. xxiv

[1] This appears not to be a slip, but a coloration of the clay in the kiln due to iron in the form of ferrous oxide. For an analysis, see *Mohenjo-daro and the Indus Civilization*, p. 530.

[2] *Op. cit.*, pl. CXXII.

[3] *Op. cit.*, pl. CXXIV.

(right) and one not unlike No. ccxvi in Smith and Gadd's list. Locus: Bl. 1, court I, (82). Level: — 16 ft.

Two softer baked, pottery bangles of ordinary red clay are:—

No. DK 8716. Decorated on the outside with a broad band of dark red paint. Carefully made. Material round in section, 0·59 in. in diameter. Size: 3·6 ins. in diameter, outside measurement. Locus: Bl. 1, court I, (82). Level: — 21 ft.

No. DK 4764. No slip, nor any trace of colouring. Material oval in section 0·78 in. wide by 0·55 in. thick. Size: 3·65 ins. in diameter, outside measurement; 2·13 ins. in diameter inside. Locus: First Street (6). Level: — 14·3 ft.

Shell.—*Plate CXL.*—No. 47 (DK 3831). Part of a wide, compound shell bangle. At each end of this piece which is 1·45 ins. wide, two holes, each 0·1 in. in diameter, were bored, by which it was evidently united to one or two other segments. This is the first example that we have found of a bracelet, composed of more than one piece of shell. Size: 2·68 ins. in diameter (estimated). Locus: Bl. 6, ho. II, rm. 10. Level: — 9·8 ft.

No. 56 (DK 12814). Segment of a shell, evidently intended for a bracelet though much further work needed to be done to complete it. Size: 2·3 ins. by 1·8 ins. outside, and 0·3 in. thick. Locus: First St. (24). Level: — 9·4 ft.

Plate CXLII.—No. 13 (DK 6183). Shell bracelet, averaging 2·2 ins. in diameter outside and 1·3 ins. wide. Only partly smoothed down inside. It may have been intended to cut this band up into several narrow bangles. Locus: Bl. 1, court I, (81). Level: — 16·5 ft.

No. 15 (DK 7411, m). Partly made shell bracelet, 2·12 ins. in diameter outside and 0·35 in. wide. This segment had been beautifully cut from the parent shell, for both upper and lower surfaces are very regular and equal. Much of the material on the inside of the circle had still to be removed before this bangle could have been worn. Locus: Long Lane, bet. Bls. 10A and 11. Level: — 19·4 ft.

Stone.—Stone bracelets are very rare, but in view of the complete absence of the material unless brought from long distances this is not surprising. The one fragment illustrated, No. 85 in Pl. CXXXVI (DK 12064), is a piece of white steatite, 3·6 ins. across, 0·5 in. wide and 0·24 in. thick; with its outer face drawn out to a blunt edge and the inner face flat. Locus: Bl. 8A, rm. 41. Level: — 4·3 ft.

I am told that in some parts of India, if not all, the number of bracelets or anklets worn must be equal in number on the two sides; that is, if there are two on one arm or ankle, there must also be two on the corresponding limb. Odd numbers are regarded as unlucky. That such a rule did not always prevail at Mohenjo-daro is shown by the figure of the dancing girl in Pl. LXXIII, 10, and also a previously found figure.[1] Nor do the village girls of Sindh now always wear equal numbers. Moreover, the copper bracelets (DK 10781, s) associated with one of the three hoards in the Northern Portion of the DK Area were, it should be noted, seven in number.

[1] *Mohenjo-daro and the Indus Civilization*, pl. XCIV, 6–8.

Anklets.

That anklets were worn by the women at Mohenjo-daro is certain from the little bronze foot in Pl. LXXIII, 5, and the pottery figurine, Pl. LXXV, 10. Men also may have worn this ornament, for the broad band of pittings on the ankles of the stone statue in Pl. LXXI, 30, if it does not represent tattoo marks, is certainly suggestive of an anklet of beads. The first mentioned anklet is most interesting, for its curve exactly resembles that of the anklet of a figure on a fresco at Knossos.[1] Sir Arthur Evans remarks that "anklets on Egyptian monuments are associated with Asiatics from a very early period as a sign of dignity"[2], but since he made this statement elaborate anklets have been found in the tomb of Hetepheres, wife of King Snefru, proving that they were worn in Egypt some time before 2,500 B. C. Moreover, anklets made of strings of minute gold beads are known from Egypt in prehistoric times.[3] Anklets were also probably worn in Sumer, though I cannot find any early evidence of their use.[4] They were certainly worn by Hittite officials of the Xth century B. C., as proved by a carving found by Koldewey at Babylon.[5] In the Merkes burials at Babylon, also, the same excavator found bodies with from three to five anklets on each leg.[6]

Hair-pins and Hair-pin Heads (*Pls. XCI, 27, 28, 33 ; C, 1–7, 9–11, 13 ; CV, 25 ; CVII, 7, 8 ; CX, 55–58 (?) ; CXXV, 7, 8, (?), 31, 32 ; CXXXVI, 53 ; 76–9 ; CXXXIX, 2–4, 22, 23 ; CXLII, 71*).

Since 1927 we have unearthed quite a good collection of hair-pins, of which the most interesting came from the lower levels. They are made of various materials and are described below in detail.

Plate XCI.—No. 27 (DK 12894) (see also Pl. CVII, 8). Ivory, 2·6 ins. long; 0·21 in. in diameter. Well made and highly polished by use. Surmounted by the head of an animal like a dog. The grooves round the top of the shank were perhaps intended to keep the pin from slipping from the hair. Locus: Bl. 8, ho. III, rm. 31. Level: – 12·2 ft.

No. 28 (DK 8012). Ivory. 2·2 ins. long; 0·16 in. in diameter. Point missing. Plain head, projecting slightly on one side. Much polished by use. Locus: Bl. 9, ho. VI, rm. 36. Level: – 9·1 ft.

[1] Evans, *Palace of Minos*, II, pp. 723, 726, figs. 450, 454.

[2] *Op. cit.*, II, p. 726-7.

[3] Petrie, *Arts and Crafts*, p. 84. That they were sometimes worn, though rarely, in the Twelfth and Eighteenth Dynasties of Egypt is proved by paintings in Tomb 260 (name and titles missing) in the Thevan necropolis. In the Twelfth Dynasty, Hotept, the wife of Amenemhet, wears anklets of some unidentified material, perhaps metal: Newberry, *Beni Hassam*, I, pl. XVIII. They are also seen at Lisht: Mace and Winlock, *Tomb of Senebtisi*, p. 72. Though they cannot be said to have been commonly used in Egypt, they certainly were worn by others than foreigners. Though Sumerian figures are not portrayed as wearing anklets, one of the figures on a gold vessel from the Astrabad treasure is wearing an anklet on each foot: M. Rostovtzeff, *Journ. Eg. Arch.* vol. VI, pl. III, 1, p. 9.

[4] But see Woolley, *Antiquaries Journal*, vol. XIV, p. 370, where he states that bead anklets were present in burials of the Jemdet Nasr Period.

[5] *Excavations at Babylon*, p. 165, figs. 103–4. One only was worn in this example and that on the right foot.

[6] *Op. cit.*, p. 265, fig. 187.

No. 33 (DK 12661). Steatite hair-pin head. 0·7 in. long; diameter 1·1 ins. Hole through centre, 0·15 in. in diameter. Design deeply cut, and evidently intended to be inlaid with coloured paste. Locus: Bl. 9, ho. IX, rm. 62. Level: – 8·5 ft.

Plate C.—No. 1 (DK 9488) (see also Pl. CXXXIX, 23). Ivory. 4·4 ins. long; 0·12 in. in diameter. Flat top, 0·1 in. thick, simply decorated on both sides with incised lines. Locus: Fore Lane, south of Bl. 10, ho. I. Level: — 26·2 ft.

No. 2 (DK 8306) (see also Pl. CXXXIX, 22). Ivory. 4·6 ins. long; 0·27 in. in diameter, fining down to a good point. Much polished by use. Locus: Bl. 7, ho. IV, rm. 71. Level: – 18·2 ft.

Nos. 3 and 10 (DK 8050). Bronze; badly corroded and bent. 4·4 ins. long. Stem 0·12 in. in diameter. Surmounted by two heads whose spiral horns show them to represent the black buck which is very common,[1] in the Bikanir desert as well as elsewhere in India, though no longer in Sindh. This particular pin affords a proof that it was not used to fasten the clothing, for the horns which were originally vertical would have been seriously in the way.[2] Locus: Bl. 7, ho. V, rm. 51. Level: – 12 ft.

No. 4 (DK 5285). Copper. Now 3·45 ins. long, across the chord. Badly corroded and point missing. Made of wire 0·16 in. in diameter, which was flattened and coiled round four times to make the head. This type of pin is well known from Sumer, the Caucasus and Central Europe soon after 3,000 B. C.[3] It has also been found in Egypt.[4] Though simple, these pins are very distinctive in design and were easily made out of round or strip metal. Though only the one example has been found at Mohenjo-daro, it does not follow that it was an importation.[5] Locus: Loop Lane, bet. Bls. 11 and 12A. Level: — 18·4 ft.

No. 5 (DK 8177) (see also Pl. CXXXIX, 2). Bone. 2·22 ins. long; 0·28 in. in diameter, Point missing. Roughly made, and not perfectly round. Locus: Bl. 7, ho. IV, rm. 49. Level: – 14·9 ft.

No. 7 (DK 6636). Copper or bronze. 1·75 ins. long by 0·15 in. in diameter. Flat, sloping head, 0·83 in. long by 0·4 in. wide, with the longer sides slightly incurved. This object somewhat resembles the pottery object in Pl. CVIII, 3, but is too small to have been used for the same purpose. Locus: Bl. 11, ho. III, rm. 27. Level: – 17 ft.

No. 9 (DK 9017) (see also Pl. CXXXIX, 3). Pin-head. Turquoise-blue vitreous paste. 0·95 in. long by 0·59 in. in diameter. Irregular hole in the flat

[1] *Antelope cervicapra.*

[2] It may be possible that the antelope was an emblem of longevity, as the stag is in China. Fraser quotes the Chinese custom of burying a hair-pin ornamented with small silver figures of a stag, a tortoise, a peach and a crane—all emblems of longevity—with a woman in the hope that through the pin she may absorb some of their life-giving powers: Fraser quoting J. J. M. de Grooti in *The Magic Art*, p. 169, note (3rd Edit.).

[3] See Frankfort, *Archæology and the Sumerian Problem*, Oriental Institute, Chicago, fig. 7.

[4] Petrie and Quibell, *Nagada and Ballas*, pl. LXV, 15. The specimen illustrated is of protodynastic date.

[5] They may even have been very common, for numberless pins have been found whose shapes are quite unrecognisable through corrosion.

base, 0·16 in. in diameter by 0·52 in. deep. Locus: Bl. 11, ho. III, rm. 27. Level: – 17·8 ft.

No. 11 (DK 7988) (see also Pl. CVII, 7). Ivory. 1·35 ins. long by 0·3 in. in diameter. Greater part of pin missing. Incised lines decorate the head for which see the line drawing, and appear once to have been filled in with black. *Locus: Bl. 7, ho. I, rm. 5. Level:* – 16·9 ft.

No. 13 (DK 6250). Pin-head. Steatite, with no trace of glaze, carved to represent two monkeys embracing one another, somewhat in the manner of another pin-head in the same material found in a previous season.[1] Hole to take pin 0·7 in. in diameter. Locus: Bl. 4, rm. 15. Level: – 18·3 ft.

Plate CX.—No. 54 (DK 8241). Ivory. Now 1·15 ins. long; 0·35 in. in diameter. Lower part missing. Top of head (edge) decorated with simple incised cross-hatching. *Locus: Bl. 7, ho. IV, rm. 50. Level:* – 17·2 ft.

No. 55 (DK 8240). Ivory. Found with No. 54. 1·75 ins. long by 0·6 in. wide and 0·15 in. thick. *Cf.* No. 8 in Pl. CXXV and Pl. CXXXVI, 79. The two heads are apparently ducks' heads. This object may once have been considerably longer as the end of the shank appears to be broken. Decorated on the two broader faces only with incised curved lines. Locus: Bl. 7, ho. IV, rm. 50. Level: – 17·2 ft.

No. 56 (DK 9352). Ivory. 2·1 ins. long. Stem, 0·21 × 0·11 in. in section. The thin end appears to have been either sawn or cut off. Incised line down the middle of the head and stem on both sides. Only one of the birds' heads at the top has survived. Locus: Bl. 3, ho. I, rm. 4. Level: – 19·4 ft.

No. 57 (DK 7532). Ivory. 1·72 ins. long. Rectangular in section, 0·2 in. thick. Incised curved lines on shank once filled in with black pigment. Two birds' heads at the top very conventionalized. Locus: Bl. 3, ho. VI, rm. 47. Level: – 20·7 ft.

No. 58 (DK 9254). Ivory. 2·05 ins. long by 0·21 in. thick. Incised design of circles on both sides. Locus: Bl. 3, ho. II, rm. 25. Level: – 17·8 ft.

It is with a certain amount of diffidence that I include Nos. 55-8 mentioned above among the hair-pins owing to their being rectangular in section; also No. 8 in Pl. CXXV, and No. 79 in Pl. CXXXVI, to be described later.

Plate CXXV.—No. 7 (DK 11995) (see also Pl. CXXXVI, 77). Ivory. 2·16 ins. long by 0·15 in. in diameter. Well made and polished by use. Locus: Bl. 23, ho. II, rm. 13. Level: – 10·5 ft.

No. 8 (DK 11368) (see also Pl. CXXXVI, 79). Ivory. These two objects were found together, one is 1·71 ins. long and the other 1·68 ins., and each 0·35 in. wide and 0·13 in. thick. It is uncertain whether they were actually used as hair ornaments, but nothing else seems so likely. The bird on each seems to represent a duck, and the patterns incised on the wider parts of their shanks were formerly filled in with black pigment.[2] Both are polished by use. Locus: Bl. 26, ho. II, rm. 12. Level: – 9·6 ft.

No. 31 (DK 11009). Pin-head. White steatite. 1·3 ins. long by 0·42 by 0·42 ins. square at the base. Blind, vertical hole in base, 0·42 in. deep. This

[1] *Mohenjo-daro and the Indus Civilization*, pl. CLVIII, 5.

[2] The heads of these objects are not unlike those of certain ivory plaques of Predynastic date: Petrie and Quibell, *Nagada and Ballas*, pl. LXII, figs. 40, 42, 43.

pin-head has a smooth white surface like that on most of the seals. Locus: Bl. 8, ho. III, rm. 47. Level: — 5·9 ft.

No. 32 (DK 10866) (see also Pl. CV, 25). Pin-head. Turquoise-blue faience. 0·8 in. long by 0·55 in. in diameter. Blind hole at one end, 0·19 in. in diameter and 0·55 in. deep. Incised lines as ornamentation at one end. Locus: Bl. 6A, rm. 39. Level: — 8·1 ft.

Plate CXXXVI.—No. 53 (DK 10037). Hair-pin head. Faience; with a slight tinge of green. 0·63 in. high by 0·4 in. in diameter. Vertical hole in lower part, 0·08 in. in diameter by 0·35 in. deep. Somewhat roughly made. Locus: West St., bet. Bls. 15 (VI) and 19. Level: — 2·9 ft.

No. 76 (DK 12066). Bone. 2·9 ins. long. Rectangular in section, 0·25 in. by 0·15 in. Rounded point; tip missing. Locus: Bl. 18, rm. 43. Level: — 8·7 ft.

No. 78 (DK 11513). Pin-head. Faience, still retaining much of its blue-green colour. 1·4 ins. high by 0·4 to 0·7 in. in diameter. Vertical hole in smaller end, 0·15 in. in diameter by 0·7 in. deep. Though it is well shaped, the simple decoration was carelessly done. Locus: Bl. 14, ho. III, rm. 24. Level: — 5·1 ft.

No. 4 in Pl. CXXXIX (DK 7564). Pin-head. White steatite. 0·89 in. long by 0·53 in. in diameter. Locus: Bl. 7, ho. VII, rm. 57. Level: — 16·5 ft.

No. 71 in Pl. CXLII (DK 7563). Pin-head. White limestone. Spherical. 1·34 ins. in diameter. Shallow pittings irregularly drilled all over surface, doubtless to take a coloured paste, like the stone stand in Pls. CIV, 23; CXXV, 34. A hole, 0·13 in. in diameter by 0·62 in. deep, makes it likely that this object is a pin-head,[1] though it is also provisionally included with the marbles (Chap. XV). Locus: Bl. 7, ho. VII, rm. 57. Level: — 16·5 ft.

Combs (*XCI, 25, 26 ; C, 15 ; CXXV, 24*).

Two of the combs found since 1927 (Pl. XCI, 25, 26) are the more valuable in that they differ in type from those found up to that time, which do not differ materially from one another. But whether these more recently discovered combs were intended for wear in the hair, we do not yet know.

Plate XCI.—No. 25 (DK 12769) is a V-shaped ivory comb, 1·11 ins. long by 0·6 in. wide and 0·33 in. thick, but not quite perfect, there being a small slip missing from the edge opposite to the teeth, so that it was originally wider than it is now. Judging from its shape and the fineness of the teeth, it may have been used to remove vermin from long, lanky hair; its shape certainly suggests that the hair upon which it was used was rope-like. On the other hand, it may equally well have been used like the modern hair-slide to fasten a single lock in place. It was very carefully made, the teeth being cut with a saw; and the roundness and polish of the angles of the former betoken considerable wear. I do not know of any comb quite like this from elsewhere, though one unearthed at Badari in Egypt may perhaps, be compared with it.[2] Locus: Bl. 9A, ho. VIII, rm. 46. Level: — 8 ft.

[1] *It was found with No. 4 in Pl. CXXXIX.*

[2] Brunton and Caton-Thompson, *Badarian Civilization*, pl. XXIV, fig. 4.

No. 26 (DK 10787) (see also Pl. CXXV, 24) seems originally to have been some 1·97 ins. long, though it now measures 1·56 by 1·2 by 0·19 ins. This ivory comb seems from its polish to have seen much use, and the teeth which were cut with a saw may originally have been very long. When perfect it must have resembled in shape the combs that are sometimes represented on the Mohenjo-daro pottery (Pl. LXVIII, 22).[1] A more perfect comb of this type found at Harappā exactly resembles the combs on the pottery.[2] This latter comb is decorated in the same way as No. 26. Locus: Bl. 8, ho. III, rm. 30. Level: — 4 ft.

No. 15 in Pl. C. (DK 7829, b). Ivory. 4·05 ins. long by 3·18 ins. broad and 0·2 in. thick. The finest comb that has been found at Mohenjo-daro up to the present. It lay among the nine skeletons that were found packed together at the western end of Long Lane (see Chap. V, pp. 116-18). It is damaged but none the less in a surprising state of preservation considering its delicate nature. Both sides are decorated in the same way with incised, concentric circles, and the teeth were cut with a saw whose blade appears to have been 0·02 in. thick. A certain amount of polish still remains, showing that it had been in use some considerable time before it was buried. Locus: Long Lane, bet. Bls. 10A and 11. Level: — 21·3 ft.

It is quite possible that many of the combs used at Mohenjo-daro were made of wood and have, therefore, perished. Wooden combs are very commonly used in India at the present day; in fact, they are in general more used than bone or ivory ones amongst the poorer classes, and it is quite a common sight to see a man spending some of his spare time combing out his long hair.

Buttons (*Pls. XCI, 29, 31, 32, 34, 35; C, 14; CXXV, 21–3; CXXXVI, 72; CXXXIX, 1, 13; CXL, 32, 44; CXLII, 6, 33*).

Buttons are very common and are found at all levels. Most of the examples are singularly uninteresting, with a slightly rounded obverse and a flat base in which two converging holes were cut by which to sew them to a garment (Pl. CXXXIX, 1, 13). More interesting are the buttons of faience or vitreous paste (Pl. XCI, 29, 30), with a slight cavity in the base bridged across for the reason that a paste of whatever kind would not have been strong enough to allow of holes only being used.[3]

A third variety is hemispherical in form and hollow, with a loop inside the apex for attachment. This form of button is considerably rarer than the others, and they are always made of metal or some form of glazed paste, the latter undoubtedly in imitation of the metal buttons. They may, indeed, have been ornaments only (Pl. XCI, 31, 32), and the round pellets of clay on many of the head-dresses of the female figurines perhaps represent ornaments of this kind.

In the first book on Mohenjo-daro, I alluded to the countries in which buttons with V-shaped or converging holes were anciently used, though the

[1] For better examples, see *Mohenjo-daro and the Indus Civilization*, pl. XCI, 13, 14, 16.

[2] *Ann. Rep. Arch. Surv. Ind.* (1927-8), pl. XXXIV, d

[3] This system of bridging ornaments was also known in Egypt during the Twelfth Dynasty, when certain gold wig rosettes were made in this way; Mace and Winlock, *Tomb of Senebtisi*, p. 60, XXVII (*d*).

buttons themselves are not all like the Mohenjo-daro examples in shape.[1] [2] We cannot, therefore, attach any importance to the method of holing buttons; it was probably invented independently in several countries. The hollow, hemispherical button, however, with a loop inside the apex may conceivably have had only one original source. It has now been found in sites in the Caucasus and Central Europe, but at considerably later periods than that of Mohenjo-daro.[3] For the present, therefore, we may tentatively infer that this kind of button was an eastern invention.

Plate XCI.—No. 29 (DK 10798) (see also Pl. CXXV, 23). Faience with slight traces of green glaze. 0·76 in. in diameter by 0·38 in. thick. Obverse rounded, with a small projecting boss in the centre. Reverse slightly concave and bridged with a strip of paste, round which were passed the threads to secure the button to the garment. Locus: Bl. 8, ho. II, rm. 46. Level: – 5·6 ft.

No. 30 (DK 11861) (see also Pl. CXXV, 22). Faience, with traces of blue glaze. 1 in. in diameter by 0·36 in. thick. Obverse slightly rounded, with boss in centre and a double marginal row of pittings. Reverse concave, and bridged across by a thin strip. Hand-made; not moulded. Locus: Bl. 9, ho. XI, rm. 75. Level: – 8·4 ft.

No. 31 (DK 3862). Faience with traces of green glaze. 0·68 in. in diameter by 0·38 in. high. Hollow hemisphere, with loop inside the apex. Evidently a copy of a metal one, since the edge is turned outwards at right angles to its sides, as was done in the metal buttons to stiffen them (Pl. CXXXV, 7). Locus: Bl. 6, ho. II, rm. 10. Level: – 9·5 ft.

No. 32 (DK 4704). Light blue faience. 0·7 in. in diameter by 0·33 in. high. Hemispherical and hollow, with a loop inside the apex. Locus: Bl. 10, ho. IV, rm. 70. Level: – 5 ft.

No. 34 (DK 3872). Silver. 1·1 ins. in diameter by 0·23 in. high. Domed top with slight boss in centre. Hollow interior, with loop inside apex. Locus: Bl. 6, ho. III, rm. 21. Level: – 7·7 ft.

No. 35 (DK 4093). Steatite with slight traces of green glaze. 0·9 in. in diameter by 0·12 in. thick. Obverse slightly rounded, reverse flat with converging holes. Locus: Bl. 9, ho. IV, rm. 6. Level: – 6·8 ft.

No. 14 in Pl. C (DK 4529). Turquoise-blue, vitreous paste. 1·05 ins. in diameter by 0·38 in. thick. Obverse slightly rounded, with boss in centre. Reverse flat, with two converging holes, the space between which had been strengthened with an added little strip of paste. Locus: First St. (9). Level: – 12·7 ft.

No. 21 in Pl. CXXV (DK 10836). White steatite. 1 in. in diameter; 0·12 in. thick. Obverse slightly rounded; reverse flat, with two converging holes. Locus: Bl. 8A, rm. 44. Level: – 4·5 ft.

[1] I have since seen a lapis-lazuli specimen of very much the same shape in the Baghdad Museum labelled as found by Woolley at Ur.

[2] To these countries must be added Neolithic Malta, Megalithic Portugal, Catalonia, Sardinia, the Balearics and Southern France, etc. Fleure and Peake, *Journ. Roy. Anthrop. Inst.*, Jan.-June 1930, p. 53.

[3] Gordon Childe, *The Aryans*, p. 124.

No. 72 in Pl. CXXXVI (DK 11276). Cream-coloured paste. Glazed; but now no trace of colour. 0·41 in. in diameter; 0·19 in. thick. Small button with V-shaped holes. The photograph shows the back of this button; the front also is rounded and has a slight depression in its centre that was filled up with a red pigment. This is the first that we have found of this form of button. Locus: Bl. 15, ho. VI, rm. 28. Level: – 6·4 ft.

Plate CXXXIX.—No. 1 (DK 5775). Faience, with no trace of colour. 0·55 in. in diameter; 0·23 in. thick. Two converging holes in flat base. Locus: Bl. 1, S. W. wing (II), rm. 7. Level: – 17 ft.

No. 13 (DK 8210). White steatite (?). 1·25 ins. in diameter by 0·25 in. thick. The usual two converging holes. Locus: Bl. 7, ho. II, rm. 92. Level: – 13·3 ft.

Plate CXL.—No. 32 (DK 4905). White steatite. 1·13 ins. in diameter by 0·2 in. thick. Obverse slightly rounded; reverse flat, with converging holes. The bridge between the two original holes had been worn away by the constant friction of the threads, and another two holes were then cut at right angles to the first. Locus: Fore Lane, bet. Bls. 1 (IV) and 10. Levels: – 11·4 ft.

No. 44 (DK 3486). Blue faience. 1·15 ins. in diameter by 0·4 in. thick. Obverse rounded with slight projection in centre, reverse flat, with two converging holes. Locus: Bl. 7, ho. V, rm. 62. Level: – 6·4 ft.

Plate CXLII.—No. 6 (DK 5491). White steatite. 0·99 in. in diameter; 0·22 in. thick. Two converging holes in flat base. Locus: Loop Lane, bet. Bls. 12 and 12A. Level: – 17·5 ft.

No. 33 (DK 5196). Faience; now white in colour. 1·85 ins. in diameter; 0·42 in. high. Shallow cone with broken loop inside apex. Two rows of indentations round edge, and slight boss or projection in centre of face. Locus: Bl. 3, ho. I, rm. 5. Level: – 14·7 ft.

Ornaments (*Pls. C, 8; CV, 22; CVII, 1, 13; CIX, 22; CXXIV, 27; CXXV, 17, 26; CXXXVI, 70; CXXXVIII, 18, 29; CXXXIX, 46; CXL, 31, 33, 35, 38–41, 54, 66; CXLII, 3*).

The uses of the following objects have not so far been determined. In all probability they were used as ornaments on garments as they are all perforated and ornamented only on one side.

No. 8 in Pl. C (DK 6833). Turquoise-blue faience. 1·5 ins. long by 0·6 in. wide by 0·1 in. thick. As the holes in the upper corners of this object show, it was intended to be sewn to something. The lower rounded end is curved outwards,[1] so that if this were a scale from some kind of corselet, as appears at first glance, the corselet would have had a very uneven surface. Moreover, so brittle a material would not have withstood rough treatment. It is more probable that this object was worn as an ornament, perhaps on the forehead. Locus: Bl. 1, ho. I, rm. 22. Level: – 12·8 ft.

No. 22 in Pl. CIX (DK 5534) is a large disc of vitreous paste, apple-green in colour, and with a toothed edge. It originally measured 3·3 ins. in diameter and 0·35 in. thick. Practically flat on both sides, it thickens slightly towards

[1] The reverse side is shown in the illustration.

the centre where there was once a small hole. Owing to its serrated edge this object can hardly be classed as a spindle-whorl; for the present, therefore, it is included amongst the ornaments. Locus: Bl. 1A, rm. 87. Level: – 17·1 ft.

No. 17 in Pl. CXXV (DK 11231). Faience; turquoise-blue in colour. 0·88 in. in diameter; 0·2 in. thick. Dome-shaped ornament with two holes for sewing to garment. Its concave side is marked with the impression of a fabric; possibly this object was moulded upon a cloth core.[1] Locus; Bl. 21, ho. III, rm. 21. Level: – 8·2 ft.

No. 70 in Pl. CXXXVI (DK 10620) (see also Pl. CVII, 13). Shell. 0·82 in. in diameter by 0·11 in. thick. Flat shell disc with an incised design on one side only. Like No. 41 in Pl. CXL it could have served as ornament and button also. Locus: Bl. 9, ho. X, rm. 55. Level: – 3·9 ft.

No. 18 in Pl. CXXXVIII (DK 10713). Faience; faint yellow glaze. 1·18 ins. in diameter; 2·24 ins. thick. Obverse rounded; reverse flat. Locus: Bl. 9, ho. X, rm. 86. Level: – 6·5 ft.

Plate CXL.—No. 31 (DK 5286) (see also Pl. CXXXVIII, 29). Faience, with slight indications of glaze but no colour. 0·85 in. in diameter; 0·2 in. thick. Flat disc, with circular groove on one side only. A pair of holes averaging 0·08 in. in diameter at each side of the margin. Locus: Bl. 1, western court (25). Level: – 11·1 ft.

No. 33 (DK 11872) (see also Pl. CXXV, 26). Red pottery; no slip. 0·75 in. in diameter; height 0·8 in. Hollow, with two small holes opposite one another near the edge. Locus: Bl. 8, ho. III, rm. 25. Level: – 6·3 ft.

No. 35 (DK 4036) (see also Pl. CXXIV, 27). Copper or bronze. 1·95 ins. long by 1·6 ins. wide and 0·15 in. thick. A flat, almost heart-shaped cast with the edges carefully trued up. Two small holes at the top. The bases of the lowered portions purposely left rough to provide a keyhold for paste inlay. Locus: Bl. 3, ho. V, rm. 8. Level: – 6·9 ft.

No. 38 (DK 5611). Faience; now white in colour. 0·81 in. diameter; 0·12 in. thick. Back flat and unornamented. Cable pattern round edge. Hole in centre, 0·04 in. in diameter. Locus: Bl. 10, ho. IV, rm. 78. Level: – 10·7 ft.

No. 39 (DK 5354) (see also Pls. CXXXIX, 46; CXLII, 3). Vitreous paste; now cream coloured. 1·35 ins. in diameter by 0·15 in. thick. Obverse rounded; reverse concave. Two small holes at the middle, each 0·05 in. in diameter. Somewhat roughly made. Locus: Bl. 1, western court (28). Level: – 14·5 ft.

No. 40 (DK 8004) (see also Pl. CVII, 1). Faience, formerly glazed. 1·52 ins. long by 0·03 in. thick. Fan-shaped. Obverse ornamented with an unusually regular and delicate incised design; reverse plain and flat. A tiny hole at the top of the fan-shaped edge and another at the point below. Owing to the thinness of this object, it is possible that it is a piece of inlay, though if so, the holes would be unnecessary. Locus: Bl. 9, ho. VIII, rm. 16. Level: – 6·4 ft.

No. 41 (DK 12317). Shell. 0·75 in. in diameter by 0·11 in. thick. A flat disc ornamented on one side only with a fluted pattern. Large, central hole. Locus: First St. (24). Level: –9 ft.

[1] For similar impressions of cloth, see p. 319.

Nos. 54 and 66 in Pl. CXL (DK 5313) are two thin, domed pieces of copper, averaging 0·75 in. in diameter. Each is perforated with two minute holes for sewing to a garment. The finding of a considerable number together in 1926-7 suggests that these circular pieces of copper were used as a kind of scale armour.[1] Locus: Bl. 1, western court (63). Level: −11·8 ft.

Pectoral.

No. 59 in Pl. CXL (DK 8036). Light yellow steatite. 2·7 ins. long by 2·5 ins. wide and 0·6 in. thick. The edge recessed on the obverse only, to a width of 0·16 in. and depth of 0·07 in. Back plain and slightly rounded.[2] The urus-like animal in relief projects 0·07 in. above the face of the plaque. The workmanship is good and the face as polished—perhaps owing to use—as the material would allow. Locus: Bl. 9, ho. VII, rm. 21. Level: 7·5 ft.

This is the first object of its kind to be found at Mohenjo-daro and it is thought that it was suspended at the breast, perhaps on ceremonial occasions. It may be that a strip of metal—perhaps gold—set in the recessed edge framed it and served to suspend it by means of affixed rings or loops.[3] The animal and the motif above it were probably inlaid with a coloured paste, though of this there is no trace left.[4]

Tabulation of Beads.

Plate.	Size (ins.).				Material.																					Locus.			Level (ft.).	Field No.
	Length or height.	Width.	Thickness.	Diameter.	Pottery.	Shell.	Faience.	Vitreous paste.	Paste.	Steatite.	Gold.	Silver.	Copper or Bronze.	Carnelian.	Lapis-lazuli.	Jasper.	Quartz.	Green-felspar.	Onyx.	Agate.	Haematite.	Limestone.	Serpentine.	Breccia.	Turquoise.	Block.	House.	Room.		
CXL 1	—	—	0·06	0·49	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 1 (III) and 7			−14·4	DK 6349
2	—	—	0·3	0·4	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	I	5	−18·7	„ 5111
3	0·91	0·7	0·36	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	IV	10	−19·6	„ 9244
4	0·74	0·42	0·2	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	3	VI	47	−18·2	„ 7293
5*	0·72	—	—	0·38	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	IV	21	−16·0	„ 6064
6	1·15	—	—	0·68	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	7	I	15	−18·2	„ 7692
7	2·08	0·9	0·78	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 1 (III) and 3			−20·5	„ 7071
8*	1·9	0·6	0·15	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	VII	56	−18·0	„ 5375
9*	—	—	0·7	1·11	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	IX	29	−20·4	„ 8639
10	1·19	0·48	0·32	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	I	21	−19·3	„ 9008
11*	—	—	0·71	1·7	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 10A and 11			−19·4	„ 7411 (J)

[1] *Mohenjo-daro and the Indus Civilization*, p. 533, pl. CXLIII, 19.

[2] This portion which is slightly weathered shows no signs of having been fastened to anything by means of a cement.

[3] The metal may also have enclosed the back of the object.

[4] Slight under-cutting of these hollows certainly suggests this

Tabulation of Beads.

Plate.	Size (ins.). Length or height.	Width.	Thickness.	Diameter.	Material. Pottery.	Shell.	Faience.	Vitreous paste.	Paste.	Steatite.	Gold.	Silver.	Copper or Bronze.	Carnelian.	Lapis-lazuli.	Jasper.	Quartz.	Green-felspar.	Onyx.	Agate.	Haematite.	Limestone.	Serpentine.	Breccia.	Turquoise.	Locus. Block.	House.	Room.	Level (ft.).	Field No.
CXI																														
12	—	—	0·21	0·4	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	II	21	−18·7	DK 9806
13	0·95	—	—	0·5	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	I	18	−14·9	„ 5597
14	1·42	—	—	0·37	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	„	15	−27·9	„ 9587
15*	0·95	—	—	0·47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	7	III	47	−13·8	„ 8124
16*	0·67	—	—	0·6	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	I	3	−33·3	„ 9606
17*	0·42	—	—	0·25	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	„	17	−14·4	„ 542
18	0·6	—	—	0·25	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	III	2	−19·2	„ 8981
19*	0·75	—	—	0·23	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	„	2	−21·1	„ 9045
20*	0·75	0·7	0·16	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	VIII	22	−14·5	„ 7881
21	0·6	—	—	0·41	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	1	I	18	−14·9	„ 5598
22*	0·73	—	—	0·63	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	III	48	−14·8	„ 8247
23	—	—	0·1	0·61	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 11 and 12.			−13·6	„ 5121
24*	—	—	0·21	1·1	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	I	3	−33·4	„ 9637
25*	1·77	—	—	0·45	—	×	—	—	—	×	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	2	IV	22	−14·0	„ 5581
26*	—	—	0·12	0·41	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 1 and 10 (1).			−27·0	„ 9510
27*	2·18	1·39	0·47	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1A	—	37	−15·9	„ 5477
28*	1·32	1·03	0·31	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	I	19	−14·3	„ 7674
29*	0·82	0·51	0·8	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	IV	61	−13·7	„ 5339
30	0·84	—	—	0·65	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	I	1	−18·7	„ 7787
31	1·05	—	—	0·76	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	IV	23	−16·0	„ 6138
32*	4·15	—	—	0·35	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	IX	29	−23·1	„ 9374
33	0·59	—	—	0·2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	7	I	19	−15·6	„ 6733
34*	0·65	—	—	0·4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	Bet. Bls. 10A and 11.			−19·7	„ 7411(b)
35	0·93	0·41	0·22	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	I	2	−13·8	„ 4006
36*	0·58	0·68	0·35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	1	IV	74	−15·5	„ 5617
37	0·68	0·31	0·31	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	I	5	−13·7	„ 5112
38*	1·05	—	—	0·5	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	„	15	−25·4	„ 9484
39*	—	—	0·35	0·38	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	II	33	−16·4	„ 5569(b)
40	2·55	—	—	0·35	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	13	−14·9	„ 4942
41	1·12	0·68	0·5	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	3	I	5	−14·9	„ 5085
42*	—	—	0·2	0·7	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	„	18	−12·8	„ 5420
43*	1·0	0·64	0·34	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	3	IV	45	−17·1	„ 7192
44*	0·95	—	—	0·58	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	„	21	−16·3	„ 7657
45	1·2	0·53	0·4	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	VIII	63	−20·3	„ 7840
46*	1·07	0·8	0·28	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	„	16	−25·4	„ 9517
47*	0·87	—	—	0·6	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	IV	30	−16·2	„ 7811

TABULATION OF BEADS.

Plate.	Size (ins.).				Material.																					Locus.			Level (ft.).	Field No.
	Length or height.	Width.	Thickness.	Diameter.	Pottery.	Shell.	Faience.	Vitreous paste.	Paste.	Steatite.	Gold.	Silver.	Copper or Bronze.	Carnelian.	Lapis-lazuli.	Jasper.	Quartz.	Green-felspar.	Onyx.	Agate.	Haematite.	Limestone.	Serpentine.	Breccia.	Turquoise.	Block.	House.	Room.		
CXI																														
48	1·15	—	—	0·69	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	1	IV	63	−13·7	DK 5865
49*	1·93	1·17	0·23	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	10	I	6	−12·6	„ 5506
50*	1·2	0·7	0·3	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	First St. (9)			−18·8	„ 8261
51*	1·38	0·38	0·9	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	First St. (1)			−21·7	„ 8765
52	1·62	0·27	0·12	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls 9 and 10.			−20·6	„ 7097
53	1·1	—	—	0·38	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	III	26	−14·0	„ 5263
CXXXIV																														
1	0·78	—	—	0·61	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	28	+3·1	SD 3191
2	0·5	0·3	0·3	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	13	−1·1	„ 3242
3	0·5	—	0·3	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	56	+1·4	„ 3085
4	0·65	0·55	0·15	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	—	5	+0·9	„ 2932
5	0·25	—	—	0·65	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	34	+1·9	„ 3072
6	0·35	0·25	0·15	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	1	—	54	+2·2	„ 2917
7	0·58	—	—	0·25	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Surface.			—	„ 2708
8	0·8	—	0·3	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	12	−0·8	„ 3200
9	0·5	—	—	0·38	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	61	+2·4	„ 2771(a)
10	—	—	—	0·55	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	—	9	+4·9	„ 2798
11	0·4	—	—	0·2	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 1 and 2.			+6·6	„ 2882
12	2·7	—	—	0·45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	1	—	56	+1·4	„ 3018
13	1·75	—	—	0·35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	Surface.			—	„ 2824
14	—	—	0·15	0·55	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	—	16	−0·8	„ 3086
15	0·8	0·58	0·3	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Surface.			—	„ 2948
16	0·75	0·65	0·3	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls 1 and 2.			+3·2	„ 3013
17	0·7	—	—	0·39	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls 1 and 2			+2·7	„ 2973
18	1·15	0·9	0·21	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Main St.(1).			+1·0	„ 3082
19	0·64	0·44	0·2	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	Main St.(2).			+2·7	„ 2724
20	0·9	0·65	0·22	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Main Street			+1·3	„ 3136
21	1·9	0·37	0·1	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	10	—	2	+2·7	„ 2788
22	0·8	0·8	0·2	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Main Street			−3·2	„ 3004
23	0·95	0·55	0·3	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	67	+3·0	„ 2772(a)
24	1·18	0·6	0·3	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet Bls 6 and 8.			+3·5	„ 2712(a)
CXXXVI																														
1	—	—	0·2	0·2	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12	V	96	−7·9	DK 4882
2*	—	—	0·19	0·52	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	IV	69	−9·1	„ 4520
3*	0·78	0·7	0·32	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	V	19	−10·5	„ 4126

TABULATION OF BEADS.

Plate.	Size (ins.).				Material.																					Locus.			Level (ft.).	Field No.
	Length or height.	Width.	Thickness.	Diameter.	Pottery.	Shell.	Faience.	Vitreous paste.	Paste.	Steatite.	Gold.	Silver.	Copper or Bronze.	Carnelian.	Lapis-lazuli.	Jasper.	Quartz.	Green-felspar.	Onyx.	Agate.	Haematite.	Limestone.	Serpentine.	Breccia.	Turquoise.	Block.	House.	Room.		
CXXXVI																														
4	4·08	—	—	0·4	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	15	VI	33	−1·1	DK 10057
5	—	—	0·31	1·08	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	18	—	17	−7·4	„ 10942
6	0·79	—	—	0·15	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22	II	10	−3·5	„ 10064 (Beads).
6	0·71	0·2	0·16	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22	„	10	−3·5	„ 10064 (Spacers).
6	0·61	0·31	0·19	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22	„	10	−3·5	„ 10064 (Terminals).
7	0·7	0·42	0·25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	6A	—	38	−5·5	„ 10413
8	1·11	—	—	0·49	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	6A	—	41	−9·7	„ 12450
9	2·3	—	—	0·3	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Central St.			−5·0	„ 10337
10	—	—	0·79	0·99	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18	—	III	−7·8	„ 11305
11	—	—	0·8	1·25	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	16	III	21	−5·7	„ 11389
12	—	—	0·6	0·98	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25	I	10	−6·6	„ 11879
13*	1·2	—	—	0·4	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	First St. (13)			−11·7	„ 7928
14	—	—	0·25	0·75	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9A	VIII	44	−5·9	„ 12686
15	—	—	0·2	0·82	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Loop Lane (58).			−11·1	„ 12975
16*	1·68	—	—	0·5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	8A	—	38	−4·3	„ 11316
17	3·47	—	—	0·86	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6A	—	39	−8·0	„ 10858
18*	0·8	—	—	0·21	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	I	15	−6·1	„ 4395
19*	1·02	—	—	0·3	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	III	48	−5·1	„ 11067
20	1·65	—	—	0·45	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	9A	VIII	56	−9·4	„ 12757
21	1·15	0·66	0·20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	19	—	13	−1·7	„ 10477
22*	1·13	—	—	0·6	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	XII	92	−6·3	„ 10766
23*	1·15	—	—	0·48	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	VI	36	−5·8	„ 8505
24*	0·33	—	—	0·34	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	9	X	53	−9·3	„ 12916
25	0·55	0·46	0·14	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	14	III	20	−2·2	„ 10531
26	—	—	0·13	0·35	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18	—	100	−5·8	„ 11684
27	1·6	1·0	0·29	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	First St. (30)			−6·7	„ 10418
28	1·41	1·05	0·32	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	Central St.			−6·8	„ 11135
29*	—	—	0·23	1·23	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	III	29	−1·8	„ 3397
30*	1·11	0·9	0·4	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	IV	79	−7·4	„ 4813
31*	—	—	0·79	1·25	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12	I	4	−8·5	„ 5098
32	1·0	—	—	0·5	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18	—	111	−6·4	„ 11263
33*	0·75	—	—	0·6	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	II	19	−6·5	„ 4105
34*	0·41	—	—	0·38	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	III	31	−2·9	„ 10635
35	0·95	0·57	0·31	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	22	I	4	−5·3	„ 11068
36	1·7	0·7	0·2	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	23	„	1	−3·5	„ 10077
37	1·07	0·59	0·4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	23	II	13	−7·5	„ 11342
38*	0·99	0·52	0·15	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	III	28	−7·3	„ 11725

Tabulation of Beads.

Plate	Size (ins.).				Material.																					Locus.			Level (ft.).	Field No.
	Length or height.	Width.	Thickness.	Diameter.	Pottery.	Shell.	Faience.	Vitreous paste.	Paste.	Steatite.	Gold.	Silver.	Copper or Bronze.	Carnelian.	Lapis-lazuli.	Jasper.	Quartz.	Green-felspar.	Onyx.	Agate.	Haematite.	Limestone.	Serpentine.	Breccia.	Turquoise.	Block.	House.	Room.		
CXXXVI																														
39	—	—	0·3	0·19	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	19	—	9	−4·4	DK 12133
40	0·78	0·5	0·15	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	I	42	−6·2	„ 11611
41*	0·2	—	—	1·09	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	„	15	−10·6	„ 5692
42	1·7	0·62	0·3	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	III	46	−4·9	„ 10778
43*	1·51	0·48	0·28	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6A	—	82	−10·0	„ 12604
44*	3·1	—	—	1·6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	12A	I	12	−11·6	„ 5511
45*	1·67	0·9	0·39	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	III	30	−5·6	„ 10917
46*	1·3	0 8	0 3	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	X	81	−11·5	„ 12858
47*	2·15	1·15	0·4	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	VIII	19	−3·6	„ 3488
48	1·08	0·83	0·29	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Central St.			−5·6	„ 10751
49*	0·8	0·58	0·51	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	X	56	−5·6	„ 10685
50*	0·82	0·61	0·4	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11	III	29	−9·9	„ 4828
51*	1·1	0·7	0·46	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8A	—	88	−7·1	„ 11480
52*	1·11	0·87	0·41	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 1 (III) and 7.			−10·5	„ 5509
54	1·85	—	—	0·71	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 4 and 5.			−8·7	„ 4077
55	0·52	—	—	0·37	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	III	52	−11·6	„ 5867
56	0·43	—	—	0·3	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	I	13	−8·5	„ 4808
57*	1·92	—	—	0·9	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	III	27	−3·2	„ 10589
58*	0·45	—	—	0·33	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	X	86	−8·1	„ 11775
59	0·91	—	—	0·59	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	24	I	8	−6·9	„ 12941
60	0·49	—	—	0·28	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	„	19	−11·7	„ 6040
61	1·1	0·81	0·3	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15	„	1	−8·6	„ 11805
63	1·42	—	—	0·4	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12	V	96	−8·3	„ 4729
64	0 6	—	—	0·42	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	III	51	−11·7	„ 5834
65	0·52	—	—	0 42	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	„	51	−11·7	„ 5834
66*	2·1	—	—	0·72	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	IV	27	−10·1	„ 4908
67*	0·73	0 6	0·3	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	X	82	−7·7	„ 12040
68	1·06	1·2	0·36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	II	12	−8·7	„ 3398
69	—	—	0·1	0 6	—	—	×	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	First St. (18)			−10·3	„ 4136
71*	0·99	—	—	0·59	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	X	54	−7·3	„ 12401
73*	—		0·1	0·6	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	III	44	−6·0	„ 3978
74	1·2	1·1	0 33	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	15	„	10	−6·0	„ 11269
75	1·2	1·1	0·33	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	I	8	−11 9	„ 8309
81	—	—	0·11	0·75	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18	—	102	−2·5	„ 10006
82	—	—	0·24	0·18	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	X	86	−6·5	„ 10713
83	—	—	0 2	1·0	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	17	IV	37	−8·6	„ 10805
84	—	—	0·15	0·66	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8A	—	42	−3·9	„ 10930

Tabulation of Beads.

Plate.	Size (ins.).				Material.																					Locus.			Level (ft.).	Field No.
	Length or height.	Width.	Thickness.	Diameter.	Pottery.	Shell.	Faience.	Vitreous paste.	Paste.	Steatite.	Gold.	Silver.	Copper or Bronze.	Carnelian.	Lapis-lazuli.	Jasper.	Quartz.	Green-felspar.	Onyx.	Agate.	Haematite.	Limestone.	Serpentine.	Breccia.	Turquoise.	Block.	House.	Room.		
CXXXVII																														
16	—	—	0·2	0·31	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	II	6	−7·5	DK 4403
17	0·47	—	—	0·33	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	9	I	34	−1·1	,, 3236
18	0·6	—	—	0·35	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	9	III	35	−8·8	,, 4104
19	0·5	—	—	0·25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	Bet. Bls. and 4.		3	−10·8	,, 4589
20	0·4	—	—	0·25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	9	II	8	−5·5	,, 3805
21	0·48	—	—	0·3	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	Bet. Bls. and 8.		7	−5·1	,, 4390
22	0·6	—	—	0·38	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	III	21	−9·2	,, 4033
23	0·5	—	—	0·31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	Bet. Bls. and 8.		7	−8·4	,, 3492
24	0·55	—	—	0·24	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	2	I	6	−7·4	,, 4406
25	0·37	—	—	0·20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	6	III	17	−11·1	,, 4280
26	0·61	—	—	0·36	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	I	27	−4·9	,, 3325
27	0·36	—	—	0·4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	6	II	10	−9·5	,, 3855
28	1·13	—	—	0·58	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	III	20	−4·4	,, 3559
29	0·92	—	—	0·3	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	6	,,	29	−9·4	,, 3945
30	0·57	0·36	0·25	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	IV	2	−6·7	,, 4227
31	0·5	0·38	0·3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	9	III	30	−4·6	,, 3567
32	0·57	0·3	0·2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	Dump			—	,, 4496
33	0·98	0·7	0·3	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	III	43	−4·7	,, 3368
34	0·5	0·4	0·2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	7	V	68	−6·9	,, 3543
35	0·4	0·28	0·19	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	2	I	15	−6·1	,, 4294
36	0·99	0·7	0·3	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	III	22	−9·3	,, 3998
37	0·8	0·62	0·25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	2	I	5	−10·6	,, 4344
38	1·06	1·2	0·36	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	9	II	12	−3·7	,, 3398
39	0·8	0·53	0·23	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	,,	11	−10·6	,, 3847
40	0·57	0·35	0·2	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	6	I	2	−10·0	,, 3906
41	0·92	0·7	0·35	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	VIII	23	−4·4	,, 3336
42	0·8	0·61	0·2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	9	,,	15	−4·7	,, 3486
43	0·75	—	—	0·39	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	I	34	−4·7	,, 3291
44	2·7	—	—	0·39	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	9	VII	17	−7·3	,, 3747
45	1·75	—	—	0·4	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	I	18	−5·6	,, 4449
46	1·3	—	—	0·3	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	4	,,	17	−9·1	,, 8112
47	4·41	—	—	0·41	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	1	,,	15	−9·7	,, 4531
48	0·31	—	—	0·3	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	II	15	−5·4	,, 4130
49	0·32	—	—	0·34	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	7	,,	39	−9·1	,, 3716
50	0·4	—	—	0·4	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	VI	30	−11·0	,, 3709
51	0·32	—	—	0·32	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	7	V	63	−7·3	,, 3427
52	0·31	—	—	0·3	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	7	,,	63	−7·8	,, 3427

TABULATION OF BEADS.

Plate.	Size (ins.).				Material.																					Locus.			Level (ft.).	Field No.
	Length or height.	Width.	Thickness.	Diameter.	Pottery.	Shell.	Faience.	Vitreous paste.	Paste.	Steatite.	Gold.	Silver.	Copper or Bronze.	Carnelian.	Lapis-lazuli.	Jasper.	Quartz.	Green-felspar.	Onyx.	Agate.	Haematite.	Limestone.	Serpentine.	Breccia.	Turquoise.	Block.	House.	Room.		
CXXXVII																														
53	0·69	—	—	0·38	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	II	23	−3·6	DK 3297
54	0·39	—	—	0·2	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6	III	16	−7·5	„ 3397
55	0·8	—	—	0·27	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	II	88	−8·6	„ 3629
56	0·8	—	—	0·21	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	I	15	−6·1	„ 4395
57	—	—	0·1	0·98	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	II	89	−8·7	„ 3623
58	—	—	0·1	0·6	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	III	44	−6·0	„ 3978
59	—	—	0·1	0·6	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	II	22	−5·6	„ 7911
60	—	—	0 19	0·48	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	„	21	−6·2	„ 3911
61	—	—	0·2	0·56	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	6	„	9	−5·8	„ 4284
62	—	—	0·2	0·52	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Surface.			—	„ 4338
63	—	—	0·6	1·23	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	V	7	−7·9	„ 4333
64	—	—	0·4	1·1	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	First St. (11)			−8·3	„ 3704
65	—	—	0 5	1·35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	7	VIII	53	−4·1	„ 4487
66	—	—	0·5	1 2	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	I	18	−5·5	„ 4409
67	—	—	0·23	1·05	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. and 8.		7	−8·4	„ 4220
68	—	—	0·2	0·28	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	I	18	−5·5	„ 4393
69	—	—	0·18	0·76	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	V	8	−8·3	„ 4054
70	—	—	0·12	0·55	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	VII	5	−4·3	„ 4342
71*	—	—	0·19	0 52	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	IV	69	−9·1	„ 4520
72	1·1	0·9	0·1	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	I	6	−4·1	„ 3773
73	0·5	—	—	0·31	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	II	15	−5·3	„ 4099
74	0·42	—	—	0·3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	Bet. Bls. and 8.		7	−5·1	„ 4391
75	0·75	0·5	0 2	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	II	89	−7·2	„ 3572
76	0·38	0 11	0·11	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	Bet. Bls. and 8.		6	−9·4	„ 3819
77*	0·78	0·7	0·32	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	V	19	−10·5	„ 4126
78	0·72	0·71	0·3	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. and 10 (II).		9	−4·7	„ 3662
79*	1·15	—	—	0·48	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	VI	36	−5·8	„ 3505
80	0·82	—		0·42	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. and 4.		3	−10·0	„ 4597
81	0·71	—	—	0·4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. and 5.		4	−8·7	„ 4078
82*	0·75	—	—	0·6	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	II	19	−6·5	„ 4105
83	0·6	—	—	0·65	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	I	34	−4·7	„ 3293
84	·31	—	—	0·6	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	„	18	−5·2	„ 4363
85	·3	—	—	0·78	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	First St. (14)			−9·6	„ 4139
86	—	—	0·11	0 71	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	V	68	−6·9	„ 3565
87	02	0·55	0·28	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	IX	31	−6·6	„ 4610
88*	·82	0·61	0 4	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11	III	29	−9·9	„ 4828

Tabulation of Beads.

Plate.	Size (ins.).				Material.																					Locus.			Level (ft.).	Field No.
	Length or height.	Width.	Thickness.	Diameter.	Pottery.	Shell.	Faience.	Vitreous paste.	Paste.	Steatite.	Gold.	Silver.	Copper or Bronze.	Carnelian.	Lapis-lazuli.	Jasper.	Quartz.	Green-felspar.	Onyx.	Agate.	Haematite.	Limestone.	Serpentine.	Breccia.	Turquoise.	Block.	House.	Room.		
CXXXVII																														
89	1·03	0·75	0·31	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	VI	32	−11·8	DK 3601
90	1·42	—	—	0·4	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12	V	96	−8·3	„ 4729
91	0·6	—	—	0·3	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	I	5	−8·1	„ 7337
92	0·7	0·52	0·3	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls 7(VII) and 4.			−7·5	„ 7879
93	0·6	0·38	0·2	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	V	54	−4·8	„ 3328
94*	1·11	0·87	0·41	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 1(III) and 7.			−10·5	„ 5509
95	0·37	—	—	0·29	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	First St. (15)			−11·9	„ 7957
96*	1·2	—	—	0·4	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	First St. (13)			−11·7	„ 7928
97	2·1	—	—	0·72	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	IV	27	−10·1	„ 4908
98	1·12	0·9	0·37	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 10A and 11.			−11·4	„ 4817
99	—	—	0·3	0·82	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	III	43	−4·4	„ 3385
100*	—	—	0·79	1·25	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12	I	4	−8·5	„ 5098
101	0·57	0·48	0·3	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	„	2	−11·1	„ 8381
102	0·82	0·4	0·26	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	6	II	10	−9·5	„ 3854
103	—	—	—	0·67	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	I	9	−5·8	„ 3659
104*	1·35	—	—	0·71	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 4 and 5.			−8·7	„ 4077
105*	3·1	—	—	1·6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	12A	I	12	−11·6	„ 5511
CXXXVIII																														
1*	1·92	—	—	0·9	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	III	27	−3·2	„ 10589
2*	0·73	0·6	0·3	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	X	82	−7·7	„ 12040
3*	0·99	—	—	0·59	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	„	54	−7·3	„ 12401
4*	0·41	—	—	0·38	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	III	31	−2·9	„ 10635
5	—	—	0·73	1·3	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Loop Lane (58).			−11·6	„ 13002
6	0·37	0·44	0·25	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	8	III	27	−2·4	„ 10550
7	0·2	—	—	0·17	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	VIII	44	−3·5	„ 10475
8*	0·45	—	—	0·33	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	X	86	−8·1	„ 11775
9*	1·13	—	—	0·6	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	XII	92	−6·3	„ 10766
10*	0·8	0·58	0·51	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	X	55	−5·6	„ 10685
11*	0·33	—	—	0·34	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	9	„	53	−9·3	„ 12916
12	0·47	0·44	0·19	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	8	III	27	−4·2	„ 11765
13	0·7	—	—	0·41	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6A	—	31	−8·2	„ 10815
14	1·68	—	—	0·5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	8A	—	36	−4·3	„ 11316
15*	1·1	0·7	0·46	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8A	—	33	−7·1	„ 11480
16*	1·02	—	—	0·3	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	III	48	−5·1	„ 11067
17	1·1	0·7	0·46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	8A	—	33	−7·1	„ 11480
19	—	—	0·08	0·56	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	VIII	44	−3·3	„ 10602

Tabulation of Beads.

Plate.	Size (ins.).				Material.																					Locus.			Level (ft.).	Field No.
	Length or height.	Width.	Thickness.	Diameter.	Pottery.	Shell.	Faience.	Vitreous paste.	Paste.	Steatite.	Gold.	Silver.	Copper or Bronze.	Carnelian.	Lapis-lazuli.	Jasper.	Quartz.	Green-felspar.	Onyx.	Agate.	Haematite.	Limestone.	Serpentine.	Breccia.	Turquoise.	Block.	House.	Room.		
CXXXVIII																														
20*	3·47	—	—	0·36	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6A	—	39	−8·0	DK 10658
21	1·15	0·99	0·41	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 4 and 7.			−5·3	„ 3417
22	1·11	0 9	0·4	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	IV	79	−7·4	„ 4813
23	0·91	0·81	0·32	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	V	62	−5·0	„ 3467
24	1·27	0·7	0·32	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9A	VIII	62	−7·2	„ 12667
25	0·5	0·36	0·11	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 10 and 12.			−5·5	„ 4687
26	0·86	0·6	0·36	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	V	62	−5·3	„ 3485
27*	—	—	0·23	1·23	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	III	29	−1·8	„ 3397
28*	0·2	—	—	1·09	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	I	15	−10·6	„ 5692
29	—	—	0·2	0·86	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	IV	25	−11·1	„ 5286
30	0·94	0·31	0·23	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	VIII	20	−7·0	„ 8070
31	1·0	0 3	0·15	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	I	15	−8·3	„ 4432
32*	1·51	0 48	0·28	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	6A	—	32	−10·0	„ 12604
32A	—	—	0·13	0·43	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	VII	17	−7·4	„ 4675
33	1·0	0·25	0·2	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	I	27	−3·5	„ 3797
34*	2·15	1·15	0·4	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	VIII	19	−8·6	„ 3488
35*	1 3	0·8	0·3	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	X	81	−11·5	„ 12653
36*	1·67	0·9	0·30	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	III	30	−5·6	„ 10917
37	0·99	0·52	0·15	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	„	28	−7·3	„ 11725
38	0 7	—	—	0·75	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	6	I	3	−11·1	„ 3536
39	0·58	—	—	0·7	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	„	34	−8·0	„ 8605
40	1·05	0·40	0·23	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	9	VI	36	−8·4	„ 7956
CXXXIX																														
29	—	—	0·15	1 63	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	III	44	−15·0	„ 8342
30	—	—	0·02	0·7	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	I	19	−13·0	„ 6410
31	—	—	0·22	0·8	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	V	66	−16·0	„ 8101
32	—	—	0·21	0·7	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 1 and 7.			−25·6	„ 9508
33	—	—	0·5	0·89	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 1 and 10 (I).			−28·3	„ 9633
34	0·7	0·61	0 15	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	III	51	−12 4	„ 8032
35	0·65	—	—	0·29	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	VII	35	−16·8	„ 5825
36	1·2	—	—	0 5	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	IV	30	−16 2	„ 7814
37	—	—	0·47	0·98	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 10A and 11.			−19 4	„ 7410(o)
38	—	—	0 69	0·9	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	VIII	16	−24·1	„ 9400
39	—	—	0·25	0·38	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	First St. (9).			−12·7	„ 4522
40	—	—	0·63	1·11	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	VIII	16	−24·4	„ 9493
41	—	—	0·4	0 86	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	I	20	−14 2	„ 5277
42*	0·67	—	—	0·0	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	IV	30	−16·2	„ 7811
43*	0·95	—	—	0 58	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	„	21	−16·3	„ 7657

Tabulation of Beads.

Plate.	Size (ins.)				Material																					Locus.			Level (ft.).	Field No.
	Length or height.	Width.	Thickness.	Diameter.	Pottery.	Shell.	Faience.	Vitreous paste.	Paste.	Steatite.	Gold.	Silver.	Copper or Bronze.	Carnelian.	Lapis-lazuli.	Jasper.	Quartz.	Green-felspar.	Onyx.	Agate.	Haematite.	Limestone.	Serpentine.	Breccia.	Turquoise.	Block.	House.	Room.		
CXXXIX 44*	0 95	—	—	0·5	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	I	18	–14·9	DK 5597
45*	—	—	0·71	1·7	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 10A and 11.			–19·4	„ 7411(f)
46	—	—	0·19	1·35	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	IV	28	–15·0	„ 5854
47	—	—	0·48	0·92	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	III	1	–13·5	„ 6947
48	—	—	0·68	0·99	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 9 (VI) and 12.			–20·6	„ 9023
49*	—	—	0·7	1·11	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	IX	29	–20·4	„ 8639
50*	0·42	—	—	0·25	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	I	17	–14·4	„ 5422
51	0·45	—	—	0·22	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	„	18	–19·5	„ 9068
52*	—	—	0·21	1·1	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	„	8	–33·4	„ 9837
53	0·41	—	—	0·23	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	III	1	–17·3	„ 6371
54*	0·75	—	—	0·23	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	„	2	–21·1	„ 9045
55*	—	—	0·12	0·41	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 1 and 10 (I).			–27·0	„ 9510
56	—	—	0·2	0·35	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 1 and 10 (I).			–24·4	„ 9468
57	—	—	0·15	0 45	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 10A and 11.			–12·2	„ 4823
58	—	—	0·40	1·15	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	II	21	–17·4	„ 9186
59	0·38	—	—	1·3	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	First St. (9).			–12·7	„ 4650
60*	0·73	—	—	0·63	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	III	48	–14·8	„ 8247
61*	0·67	—	—	0 6	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	I	3	–33·3	„ 9806
62	—	—	0·1	0·6	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	IV	63	–19·7	„ 6938
63	—	—	0 08	0·7	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	III	43	–13·1	„ 8160
64	—	—	0·17	0·55	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	IV	23	–16·0	„ 6137
65*	4·15	—	—	0·35	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	IX	26	–23·1	„ 9374
66	0·42	—	—	0·81	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 1 and 10 (I).			–26·9	„ 9544
67	—	—	0·45	0·66	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	I	7	–15·6	„ 4577
68*	—	—	0·2	0 7	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	„	18	–12·8	„ 5420
69*	0 65	—	—	0·4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	Bet. Bls. 10A and 11.			–19·7	„ 7411(k)
70*	2·18	1·30	0 47	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1A	—	87	–15·9	„ 5477
71	—	—	0·2	1·02	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	First St. (9).			–12·6	„ 4578
72	4·02	—	—	0·34	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	II	21	–18·7	„ 9189
73*	0·82	0·51	0·3	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	IV	61	–13·7	„ 5389
74*	0·72	—	—	0·38	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	„	21	–16·0	„ 3064
75	1·03	0·5	0·35	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	III	26	–14·0	„ 6072
76	1·28	—	—	0·33	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	12A	I	18	–17·2	„ 7652
77	0·64	0 41	0·41	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 1 (III) and 7.			–12·6	„ 6709
78	2·55	—	—	0 35	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	5	I	12	–14·3	„ 3809
79*	1·0	0·64	0 34	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	3	IV	45	–17·1	„ 7192

TABULATION OF BEADS.

Plate.	Size (ins.).				Material.																				Locus.			Level (ft.).	Field No.
	Length or height.	Width.	Thickness.	Diameter.	Pottery.	Shell.	Faience.	Vitreous paste.	Paste.	Steatite.	Gold.	Silver	Copper or Bronze.	Carnelian.	Lapis-lazuli.	Jasper.	Quartz.	Green-felspar.	Onyx.	Agate.	Haematite.	Limestone.	Serpentine.	Breccia.	Turquoise	Block.	House	Room.		
CXXXIX																														
80*	1·32	1·03	0·31	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	I	19	–14·3	DK 7674
81*	1·05	—	—	0·5	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	,,	15	–25·4	,, 9484
82	1·35	—	—	0·3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	II	20	–16·5	,, 6822
83	0·5	—	—	0·35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	Bet. Bls. 4 and 5.			–14·6	,, 4287
84	—	—	0·37	0·4	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 1 and 10 (I)			–27·0	,, 9511
85	0·51	—	—	0·25	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	First St. (9).			–13·5	,, 4426
86	0 63	—	—	0 3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	I	2	–14 0	,, 4037
87*	0·58	0·68	0·35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	—	1	IV	74	–15·5	,, 5617
88*	0·95	—	—	0·47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	7	III	47	–13·8	,, 8124
89*	1·77	—	—	0·45	—	×	—	—	—	×	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	2	IV	22	–14·0	,, 5531
90*	—	—	0·35	0·38	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	II	33	–16 4	,, 5569(*b*)
91	—	—	—	1·02	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	,,	6	–13·1	,, 5682
92	—	—	0·13	0·38	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	IX	29	–20·2	,, 8636
93	—	—	0·26	0·86	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	IV	45	–17·1	,, 7197
94*	0·76	0·7	0 16	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	VIII	22	–14·5	,, 7381
95	0·55	—	—	0·28	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	,,	53	–17·8	,, 8655
96	—	—	0·3	0 4	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	VI	74	–14·4	,, 7428
97	1·15	—	—	0 4	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4	—	8	–12·6	,, 4948
98	0 35	—	—	0·22	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	8	II	16	–16·8	,, 9004
99*	1·9	0·6	0·15	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	VII	56	–18·0	,, 5375
100	—	—	—	0 4	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 7 and 8.			–21·1	,, 9046
101	0·3	—	—	0 4	—	×	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	2	II	21	–18 8	,, 9214
102	0 51	0 4	0·1	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 10 (III) and 12.			–17 4	,, 7038
103	0·79	—	—	0·3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	VIII	53	–17·8	,, 8656
104*	1 2	0·7	0·3	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	First St (9)			–18·8	,, 8261
105*	1·93	1 17	0·23	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	10	I	6	–12 6	,, 5506
106	1 78	0 4	0·23	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	III	43	–13·4	,, 7164
107	1 09	0 51	0 25	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	I	2	–12 6	,, 3836
108*	1·38	0 36	0 9	—	—	—	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	First St. (1)			–21·7	,, 8765
109*	1 07	0 3	0·26	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	VIII	16	–25 4	,, 9517
110	1·05	0 72	0 4	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1A	—	87	–18·3	,, 5520
111	0·6	0·32	0·2	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7	VII	58	–13·1	,, 9084
112	0 37	0·32	0·11	—	—	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 9 (VI) and 12			–20 4	,, 9030

Of seven beads and pendants whose material is not stated in the above tabulation, six are of a variety of hornblende (see p. 500) and one of a hard, black stone (Pl. CXXXVII, 81), which has not yet been identified.

Chapter XV.

GAMES AND TOYS.

The number of toys that are found and their diversity, ranging from models of people and animals, pottery carts and birds mounted on wheels to rattles, whistles, gamesmen, marbles and dice, is one of the most interesting features of Mohenjo-daro.

Human Figures as Toys (*Pls. LXXII, 3; LXXV, 2; LXXVI, 6, 25; LXXVIII, 10, etc.*).

Some of the most peculiar of the human figurines of baked clay (Pls. LXXII; LXXIV; LXXV; LXXVI) are almost certainly playthings that were possibly made by the children who owned them. No. 3 in Pl. LXXII, a figure with its left leg raised, can hardly be explained otherwise; and No. 2 in Pl. LXXV, a male figure holding a round object to its breast, may well be a model made by a child of one of the strolling beggars that probably in the past as at the present day entertained the people with recitations and songs after announcing their presence with a drum. No. 6 in Pl. LXXVI probably also represents a mendicant with begging bowl or drum.

I am inclined, however, to think that the two figures of a crawling child in Pls. LXXVI, 25; LXXVIII, 10, were made by adults owing to their more careful finish. If so, they may be votive offerings either to obtain the recovery of an ailing child or, more likely, in return for favours received or desired.[1]

For detailed descriptions of these figures, see Chapter IX on Statues, Figurines and Model Animals.

The Indian child to-day is very fond of making clay figures of men and animals, but they are usually left unbaked. It is not, however, difficult even for a child to bake his clay models, and I have seen it done with a little fuel in a hole in the ground in both Egypt and India.

Toy Animals (*Pls. LXXVIII, 8, 9, 12; LXXXI, 5, 8, 9, 14, 18, 19, etc.*).

Many of the toy animals that have been found could equally well be the handiwork of children as of adults, and some of the more roughly made model animals are certainly toys. The figures with moveable arms (Pls. LXXVIII, 12; LXXXI, 5, 8, 9, 14, etc.), which are described in Chapter IX, all appear, to have been acrobatic toys that were perhaps made by a professional toymaker. And it is not unlikely that other toys of this kind were made of wood and so have perished.

[1] Both figures represent children in vigorous health. *Cf.* the Twelfth Dynasty limestone figure of a crawling child from Egypt: Petrie, *Objects of Daily Use*, p. 59, pl. LI, fig. 370.

Whistles (*Pls. CIX, 60, 61; CX, 8; CXLII, 79*).

Of the whistle in the shape of a hen described in the first book on the site,[1] we have found many examples at all levels. Two new varieties unearthed more recently are described below:—

Nos. 60 and 61 in Pl. CIX (DK 6168) (see also Pl. CX, 8). Very hard baked pottery; no slip, 1·65 ins. high. A somewhat roughly made, pear-shaped object with a small hole at the top and another in the side. By blowing into the top and using the lateral hole as a stop, various modulations of sound can be produced. Three of these whistles, all slightly different in size, were found together. Locus: Bl. 4, rm. 8. Level: — 17·7 ft.

No. 79 in Pl. CXLII (DK 8852). Pottery; with traces of a light red slip. Apparently a miniature jar whose rim had been rubbed down to enlarge the hole slightly. A second hole near the mouth was doubtless used as a stop, as in the above example. Locus: Bl 9, ho. III, rm. 35. Level: — 14·2 ft.

Rattles (*Pls. CXII, 3; CXL, 21; CXLII, 80, 81, 87, 88*).

Rattles, though numerous at Mohenjo-daro, seem to be only one shape, namely, a hollow ball of baked clay with one or more pellets inside. They are found at all levels and vary somewhat in size. Model animals as rattles are not found though they are frequent at the ancient Sumerian sites. In the one animal figure that produces a rattling sound when shaken, the noise is very slight and obviously due to the accidental inclusion of a loose fragment of clay when it was made.[2]

As a rule the ball rattles were made of the same clay as that used for ordinary pottery, the grey clay of No. 21 in Pl. CXL being a notable exception. In the interior of those rattles that we have been able to examine there were two and sometimes three rough pellets of clay. The wall is generally substantial, but not so thick as to make the rattle heavy or to dull the sound.[3]

No. 3 in Pl. CXII (DK, DG, 82). Light red pottery. Average diameter 2·3 ins. The lines that decorate this rattle are now light grey, perhaps owing to long immersion in water having altered the original red. Locus: Bl. 7, deep digging. Level: — 41 ft.

No. 21 in Pl. CXL (DK 11913). Light grey pottery. Average diameter 1·4 ins. Ornamented with parallel dark-red lines, those on one hemisphere at right angles to those on the other. Locus: Bl. 9, ho. X, rm. 85. Level: — 7 ft.

Plate CXLII.—Nos. 80 and 81 (DK 6746). Light red pottery; no slip. No. 80, an average of 2·1 ins. in diameter; No. 81, 1·67 ins. Roughly decorated with red lines. Found together. Locus: Bl. 9, ho. VII, rm. 17. Level: — 15·4 ft.

[1] *Mohenjo-daro and the Indus Civilization*, p. 551, pl. CLIII, 17, 18.

[2] *Op. cit.*, p. 354; pl. XCVII, 23.

[3] I can find no records of similar simple rattles from other ancient civilizations, save an egg-shaped one of Predynastic date from Egypt: Petrie, Wainwright, Mackay, *The Labyrinth Gerzeh and Mazghuneh*, pl. VI, fig. 11. In this, as in the rattles of Mohenjo-daro, the sound was made by pellets of clay.

No. 87 (DK 4915). Light red pottery. 1·4 ins. in diameter. Decorated with red lines. Locus: Bl. 4, rm. 13. Level: – 13·7 ft.

No. 88 (DK 9594). Drab coloured pottery. 2·2 ins. in diameter. More carefully made than usual, and more or less evenly decorated with crossed, dark red lines. Locus: Bl. 7, ho. VIII, rm. 16. Level: – 26·2 ft.

Cubical Dice (*Pls. CXXXIX, 20; CXL, 19, 20, 63; CXLII, 84–6*).

Dice of this form are not quite so often found as the tabular ones of ivory. They occur at all levels; and some are exceptionally well made while others, of pottery, are roughly fashioned and by reason of their inaccuracy of shape must have been far from true. Though generally these dice are numbered 1 opposite 2, 3 opposite 4, and 5 opposite 6, there are variations, as is seen in the lists given below. In none found as yet does the sum of two opposite sides equal seven, as in modern dice. Of the more recent finds, some are stone and the three examples illustrated, one of which, alas, is incomplete, were accurately made. I have already pointed out that cubical dice seem to have originated in the East.[1] Woolley has found one made of light grey pottery in an early stratum at Ur, with the numbers arranged as in Pl. CXLII, 86, save that a rosette replaces the No. 1.[2] As the rosette is a frequent motif in early Sumerian and Elamite art and exceedingly rare at Mohenjo-daro, we must conclude that the die from Ur is not an actual importation from India, though it is not inconceivable that the idea was taken from that country. The next earliest example of a cubical die outside India is one with painted numbers from Tell el-Amarna, which was found by the Egypt Exploration Society in 1921 and dated to the Eighteenth Dynasty. On this die, also, the numbers are arranged as on most of the cubical dice of Mohenjo-daro. It is not until very much later that cubical dice appeared in Europe.

No. 20 in Pl. CXXXIX (DK 8906). Ivory. 0·93×0·85×0·72 ins. Quite differently marked from the other dice, two opposite sides being blank, three marked with a circular device, as seen in the illustration, the remaining side bearing three pictographic signs, perhaps to mark a special move in a game. Its inequality of shape doubtless led to certain sides appearing more frequently than the rest; but none the less it shows the polish of much use. Locus: Bl. 8, ho. II, rm. 16. Level: – 15·3 ft.

Plate CXL.—No. 19 (DK 12715). Reddish pottery; smoke-stained in places. 1×0·92×0·76 ins. Very roughly made, and badly out of shape. 1 opposite 3, 2 opposite 4, 5 opposite 6. The holes that indicate the numbers were made with a pointed stick. Locus: Bl. 9, ho. XII, rm. 94. Level: – 9 ft.

No. 20 (DK 6553). Light red pottery; no slip. 1·1×1·15 ins. Roughly made, and out of the square. Very deep points 0·12 in. in diameter. 1 opposite 2, 3 opposite 4, 5 opposite 6. Locus: Bl. 9A, ho. V, rm. 68. Level: – 9·1 ft.

[1] *Antiquity*, Dec., 1931, p. 463.

[2] The Vedic Indian regarded this number as unlucky in his games of dice: Oppert, *Original Inhabitants of India*, pp. 329-30.

No. 63 (DK 10246). Yellow agate. 0·75×0·75×0·75 (?). Though a considerable portion of this die is missing, enough remains to show that it was beautifully made and finished, with plane, polished sides and accurately bored numbers. With the possible exception of No. 86 in Pl. CXLII, it is the best finished specimen found at Mohenjo-daro. The numbers are 1 opposite 2, 4 opposite 5. The number 6 has disappeared owing to breakage. Locus: Bl. 6A, rm. 41. Level: — 5·6 ft.

Plate CXLII.—No. 84 (DK 5631). Grey pottery. 1·11×1·2×1·09 ins. The numbers on this die are marked by small inlaid beads, 1 opposite 2, 3 opposite 4, and 5 opposite 6—a point of interest as beads were rarely used in this way for any form of ornamentation at Mohenjo-daro, though this technique was fairly common in Predynastic times in Egypt, where white beads served as eyes for pottery figures and slate palettes in animal form.[1] Grey pottery is also very rarely used for making dice; as mentioned above, we also have an example from Sumer. Locus: Bl. 1, ho. VII, rm. 3. Level: — 16·6 ft.

No. 85 (DK 7989). White limestone. 1×1×1 ins. Accurately made with the angles slightly rounded. The holes that indicate the numbers are 0·13 in. in diameter and carefully drilled, 1 opposite 3, 2 opposite 5, and 4 opposite a blank side which corresponds perhaps with the rosette of the die from Ur. Locus: Bl. 7, ho. IX, rm. 29. Level: — 13·2 ft.

No. 86 (DK 4013). Light grey stone of medium hardness. 1·14×1·14 ×1·14 ins. This object is so well cut and made that it would be a credit to a modern craftsman. Holes 0·15 in. in diameter and 0·1 in. deep, with a rounded base. 1 opposite 2, 3 opposite 5, and 4 opposite 6. This die is by far the most accurately made specimen found at Mohenjo-daro, though No. 63 in Pl. CXL, if complete, would probably have equalled it. Locus: Bl. 2, ho. II, rm. 25. Level: — 15·2 ft.

Tabular Dice, Rectangular and Triangular in Section.

Of these two forms of dice we have many examples from both the upper and lower levels. Indeed, such a glut of them has been found that there is no doubt that they were more commonly used than the cubical dice, either separately or two or three together. For instance, No. 43 in Pl. CXXXVIII was found with another die of the same shape but differently marked on its four sides and also small fragments of two others; and another die with different designs on two sides only was found with the short cylindrical piece illustrated in Pls. CXXXVIII, 42; CXLI, 31. In no case have two similarly marked dice of similar shape been found together. Whether these tabular dice were used separately or as markers for a board game is not known.[2]

Many of these dice are polished by much use, and in general they were very carefully made With very few exceptions they are ivory, and the majority are well preserved. Those made of bone (Pls. CX, 50, 51; CXLI, 30; CXLIII, 39) are not quite so well preserved and show a certain amount of open grain,

[1] Beads, however, served as inlay in certain gold jewellery from Harappā: Vats, *Ann. Rep. Arch. Surv. Ind.*, p. 76, pl. XXX (d).

[2] They may have been used with a board and wooden gamesmen that have long since disappeared.

as well as sometimes being out of the straight. The varied designs and markings on these dice are all lightly incised and it seems from some of the more perfect examples that they were filled in with a black pigment to show them up more clearly.[1] Their square-cut ends are sometimes plain and sometimes ornamented with circles that are usually concentric (Pl. CXXXVIII, 43, 45). The criss-cross ornamentation at the ends of No. 58 in that plate is very unusual.

Some of these dice have pictographic characters on one side (Pls. CX, 44, 53; CXXV, 9, 11; CXXXVIII, 44; CXLI, 33). The same pictograph is repeated three times on No. 11 in Pl. CXXV and four times on No. 44 in Pl. CXXXVIII, and Pl. CXLI, 33, but on the other dice various signs are grouped together, as on the seals, and may therefore be names or titles rather than anything to do with the dice themselves.

The two round rods (Pl. CX, 51, 52), which perhaps belonged to some kind of game and certainly could not have been used as dice, bear the same inscription in five characters, though they were not found together.

These tabular dice fall into several groups according to shape and decoration; but owing to the number illustrated and the fact that the great majority have been drawn to scale it is unnecessary to describe each one fully, or to give their locus or level as they are so common.

Type (a). Square in section; four sides all different (Pls. CXXXVIII, 41, 43, 48; CXLIII, 47, 49, 51).—The dice of this group average 2·99 ins. in length. On three sides they bear one, two and three circular marks, respectively (Pls. CXXXVII, 41, 48; CXLIII, 47, 49, 51), or only two sides are numbered (Pl. CXXXVIII, 43); the numbering most favoured being 1, 2 and 3. Two sides of Pl. CXXXVIII, 43, are numbered six and eight, respectively. A device very common on the fourth side of the die is a series of parallel longitudinal lines, or, more rarely, curved lines arranged as in Pl. CXLIII, 43.

Type (b). Square in section; three sides different (Pls. CXXV, 9, 11; CXLIII, 41, 43, 48, 54).—The dice of this type vary in length from 1·35 to 4·02 ins. Three of the sides are differently marked, and the fourth duplicates one of the other three; for instance, two sides are marked two in Pl. CXLIII, 41, and two marked one in Pl. CXLIII, 43, though in the latter case the position of the mark is not the same. On No. 54 in the same plate, two sides are marked three, though one of these sides is not drawn.

No. 9 in Pl. CXXV has the numbers two and three denoted by small circles in the pattern at one end, the other half of each of these sides bearing a group of pictographic characters and crossed lines, respectively. On a third side there are two parallel longitudinal lines, and the fourth side duplicates the last side. No. 11 in Pl. CXXV has a rounded, bluntly pointed end and it is possible that this die was twirled between the fingers before being thrown. The fourth side is a duplicate of the side marked with the smaller circles.

Type (c). Square in section; two sides similarly marked (Pls. CXXVIII, 58, CXLI, 32; CXLIII, 24, 33).—The dice of this type which are rare have the same distinguishing marks on opposite sides, and it is possible that two were thrown at the same time. No. 58 in Pl. CXXXVIII (see also Pl. CXLI, 32) is

[1] Sometimes red was used as well as black, *e.g.*, in Nos. 9 and 11 in Pl. CXXV, and No. 33 in Pl. CXLI.

rounded in the middle, where it is 0·21 in. in diameter, and it was perhaps twirled in the fingers like No. 11 in Pl. CXXV and No. 33 in Pl. CXLIII, 33.

Type (*d*). *Triangular in section: three sides all different* (*Pls. CXXXVIII, 44; CXLI, 33; CXLIII, 50*).—Somewhat rare, these pieces are of interest in the variety and complexity of the designs used to distinguish their three sides. The shape of No. 44 in Pl. CXXXVIII (see also Pl. CXLI, 33) is peculiar in that one side is slightly convex.

Type (*e*). *Triangular in section; two sides alike, the third different* (*Pls. CX, 53; CXXXVIII, 45, 51; CXLI, 28; CXLIII, 37*).—These dice range from 1·36 to 3·9 ins. in length, and one side of No. 55 in Pl. CX is convex instead of being flat.

Casting Sticks.

Certain of these rods of bone and ivory cannot be regarded as dice, despite their resemblance in material and pattern to the dice described above, for either all their sides or opposite sides, according to their shape, bear exactly the same pattern.

Type (*a*). *Square in section; all four sides alike* (*Pls. CX, 49; CXXV, 4; CXXXVIII, 49; CXLI, 39; CXLIII, 21, 23, 30, 31, 39*).—The casting sticks of this type vary in length from 1·7 to 4·18 ins. They frequently show the polish of much use and were perhaps used for divination or for a game which depended on the way they fell when thrown.

Type (*b*). *Rectangular in section; wider faces alike or different, the narrow faces alike or blank* (*Pls. CX, 44, 50; CXXV, 13, 14; CXXXVIII, 50, 53, 59; CXLI, 30, 37; CXLIII, 19, 22, 27, 29, 40, 42, 44, 52, 53*).—These ivory slips are very common, with an occasional variation from the usual regular, parallel-sided shape (Pl. CX, 50). The patterns on the two broader faces are usually the same, but sometimes are different; and occasionally the edges are ornamented. They vary very considerably in length, those illustrated ranging from 1·15 to 2·18 ins. long.

Type (*c*). *Triangular in section; all three sides alike* (*Pls. CX, 46; CXXXVIII, 46, 54, 57; CXLI, 34, 35, 40; CXLIII, 18, 26, 36, 38*).—Some of the sticks of this type are short, as for instance, Nos. 34 and 35 in Pl. CXLI, which were found together, and are similarly ornamented. Some of these objects are curiously shaped; *e.g.*, No. 54 in Pl. CXXXVIII (see also Pl. CXLI, 40).

Type (*d*). *Half round in section* (*Pl. CXLI, 29*).—No. 29 in Pl. CXLI (DK 10852) is a very rare shape. It is 1·87 ins. long by 0·32 in. wide by 0·15 in. thick, with a rounded side ornamented as shown in the illustration, the curved incised lines being picked out in red and black. The flat side is marked with concentric circles, one group in the middle and one at either end. Locus: Bl. 8A, rm. 44. Level: — 4·8 ft.

Round Rods (*Pls. CX, 45, 47, 48, 51, 52; CXXV, 2; CXXXVIII, 42, 47; CXLI, 31, 46; CXLIII, 20*).

The round ivory rods that have been found can be divided into two groups: (*a*), those of the same diameter throughout, and (*b*), a short variety with an ornamental head.

Of group (a), a considerable number have been found at all levels from — 21·4 ft. upwards. More frequently than not there is an inscription in the middle of the rod, as on Nos. 51 and 52 in Pl. CX, which two pieces with the same inscription come from different parts of the site and different levels.[1] In the first book on Mohenjo-daro it was tentatively suggested that these objects may have been seals, but I am now inclined to the opinion that they were used in some form of game, though what that was we do not yet know.[2] Most of these rods are polished by much use.

Plate CX.—No. 45 (DK 7514). Ivory. 2·65 ins. long by 0·4 in. in diameter. Ends square-cut and plain. Shows a considerable amount of wear and is not exactly round. On one side is a group of three pictographic signs and on the other three figure-of-eight marks. Since this rod was drawn, we have found the missing end which was exactly the same as the other end and added nothing to the inscription. Locus: Bl. 3, ho. II, rm. 41. Level: — 15·5 ft.

No. 48 (DK 6270). Ivory. 2·65 ins. long. Small group of pictographs on one side. Locus: Bl. 4, rm. 14. Level: — 20·2 ft.

No. 51 (DK 8394). Bone. 3·05 ins. long by 0·32 in. in diameter. Tapers very slightly towards one end. Ends square-cut and decorated with concentric circles. Group of five pictographic signs near the middle, as illustrated. Much polished by wear. Locus: First Street (22). Level: — 21·4 ft.

No. 52 (DK 9144). Ivory. 3·07 ins. long by 0·31 in. in diameter. Ends square-cut and decorated with concentric circles. Highly polished by wear. Bears the same group of pictographs as No. 51 Locus: Bl. 2, ho. II, rm. 22. Level: — 17·5 ft.

No. 47 in Pl. CXXXVIII (DK 4929). Ivory. 2·82 ins. long by 0·4 in. in diameter. Ends square-cut and plain. Tapers very slightly to one end. The incised bands seem to have been filled in originally with black paint. No inscription. Locus: Bl. 4, rm. 8. Level: — 10·7 ft.

Of group (b) (Pls. CX, 47 ; CXXV, 2 ; CXXXVIII, 42 ; CXLI, 31) we have only a few examples. At first sight they might be taken for gamesmen, but their bases are too small for them to stand securely, unless, of course, they were used on a board with holes into which they fitted. But as they are always found separately and never in groups, we must conclude that they had another use.

No. 47 in Pl. CX (DK 7353). Ivory. 1·45 ins. long by 0·4 in. in diameter at the base which is ornamented with concentric circles. Rather roughly made. Locus: Bl. 3, ho. VI, rm. 47. Level: —19·3 ft.

No. 2 in Pl. CXXV (DK 11164). Ivory. 1·47 ins. high by 0·41 in. in diameter at the base, on which is a design of concentric circles. The lower part

[1] For the inscription on No. 53 in Pl. CX, see also Pl. CIII, 19. The inscriptions on two other rods which are not themselves illustrated are to be seen in Pl. CIII, 17, 18.

[2] Hunter, *Journ. Roy. Asiatic Society,* April, 1932, p. 467. Dr. Hunter points out that similar objects, though not inscribed, are known at Taxila. We have no evidence, nor does it seem to me to be likely, that these small rods were used as nose, lip or ear ornaments, like the sticks that adorn the features of some African tribes. I only mention this, because this use of these rods has been suggested to me on several occasions.

of this object is ornamented with hatched lines. Something missing from the top was probably a knob. Locus: Bl. 21, ho. III, rm. 21. Level: — 8·6 ft.

No. 42 in Pl. CXXXVIII (DK 11093) (see also Pl. CXLI, 31). Ivory. 1·63 ins. long by 0·35 in. in diameter at the base, which is decorated with concentric circles. Locus: Bl. 8A, rm. 44. Level: — 8·1 ft.

Ivory Fish (*Pls. CXXXVIII, 52; CXLI, 48; CXLIII, 23, 34*).

No definite conclusion can yet be formed as to the use of these little flat models of fish. That they were a part of some game seems likely, as they are only roughly shaped, the markings which are the same on both sides being crude attempts to copy those of the real fish.

No. 52 in Pl. CXXXVIII (DK 12552) (see also Pl. CXLI, 48). Ivory. 3·7 ins. long by 0·49 in. wide by 0·28 in. thick. The incised marks had been filled in with red and black pigment. Polished by constant use. Locus: Bl. 6A, rm. 34. Level: — 8·6 ft.

Plate CXLIII.—No. 28 (DK 8195). Ivory. 2·8 ins. long by 0·28 in. wide by 0·19 in. thick. Eyes and fins incised and filled in with a coloured paste which is now light yellow. Locus: First Street (12). Level: — 16·7 ft.

No. 34 (DK 7325). Ivory. 2·61 ins. long. Incised markings. Locus: Bl. 12, ho. V, rm. 95. Level: — 20·1 ft.

Miscellaneous Ivory Objects (*Pls. CV, 44; CXXXVIII, 61; CXLI, 36, 38, 47; CXLIII, 45, 46*).

No. 44 in Pl. CV (DK 11903) (see also Pl. CXXV, 15). 3 ins. long by 0·66 in. wide by 0·2 in. thick. Flat strip of ivory. The incised design of circle and lines on each side was filled in with black and red pigments of which traces remain. Locus: Bl. 8, ho. III, rm. 31. Level: — 8·3 ft.

No. 61 in Pl. CXXXVIII (DK 11712) (see also Pl. CXLI, 36). Ivory. 2 ins. long by 0·35 in. wide by 0·16 in. thick. Edges plain except for lightly incised details of a bull's foot at base. Locus: Bl. 8A, rm. 40. Level: — 7·1 ft.

Plate CXLI.—No. 38 (DK 8083). Ivory. 3·23 ins. long by 0·39 in. in diameter at its widest part. A shallow hole in each end, 0·09 in. in diameter by 0·08 in. deep. Entirely undecorated. Locus: Bl. 7, ho. IX, rm. 33. Level: — 9·1 ft.

No. 47 (DK 4025). Ivory. 2·8 ins. long by 0·6 in. wide by 0·6 in. thick. Polished by wear. The edges are marked with concentric circles in three places, and the front and back are ornamented as illustrated. *Cf.* Nos. 45 and 46 in Pl. CXLIII. Locus: Bl. 4, rm. 79. Level: — 5·9 ft.

Plate CXLIII.—No. 45 (DK 9132). Ivory. 2·16 ins. long. *Cf.* No. 47 in Pl. CXLI. Locus: Bl. 3, ho. I, rm. 5. Level: — 15·7 ft.

No. 46 (DK 5551). Ivory. 2·92 ins. long. Locus: Bl. 1, eastern court (I), rm. 73. Level: — 16·6 ft.

The last three objects bear a striking resemblance to one another. They suggest some kind of architectural feature, such as a column, though nothing

of the kind has been found in the architecture of Mohenjo-daro, unless columns were sometimes made of wood and have perished. These little ivory objects may have formed part of a model shrine.

Balls and Marbles.

Though a good selection of balls and marbles has been found at Mohenjo-daro and at all levels, they were clearly not very common. Most of those made of the harder stones are beautifully shaped and polished; and if they were used in some form of game each player had only one, for save in one case only they are never found in pairs or groups.[1] They may have been used as in the marble games, of to-day, or to be rolled through little gateways, or to knock down miniature skittles; if the latter, hoops and skittles must have been made of wood, for no trace of any such object has been found in association with a ball, unless the little ivory pieces illustrated in Pls. CX, 47; CXXV, 2; CXXXVIII, 42; CXLI, 31 were skittles. We know that marbles were used as playthings in both Sumer and Egypt. In the latter country, they are commonly found in predynastic graves after about SD, 38 or 39, but in groups; nor are they in general so carefully made as the specimens from Mohenjo-daro.[2] At Jemdet Nasr have been found a number of more or less pyriform marbles of pink limestone and slate which could only have been used in some kind of game.[3]

I must, however, confess to some doubt whether the more finely finished stone balls were actually used as marbles; or the shell balls with a decoration of concentric circles in relief, shortly to be described. A few of these stone balls are made of soft stones such as limestone and alabaster, and would hardly have stood the amount of knocking about undergone by an ordinary marble.

We know that stone balls have been and are even now used in some parts of Central America for divination, for a jade ball, 2 ins. in diameter, found in a pottery jar of the old Maya civilization[4] in Yucatan was at once recognised by the local workers as exactly similar to the *Sastun*, or conjuring stone, used by medicine men at the present day in connection with their magic and incantations.[5]

It is true that only a few of the stone balls of Mohenjo-daro approach the Mayan examples in size, but it seems likely that if they had been made for use in a game less attention would have been given to their finish and polish.[6]

We have yet to find examples of larger balls that would have been used by children to throw to one another. That they once existed is very likely, but they would have been made of materials that have long ago perished, like the

[1] *Mohenjo-daro and the Indus Civilization*, p. 553.

[2] Petrie, *Prehistoric Egypt*, p. 32. Balls made of quartz and limestone, dated to the Third Dynasty and found at Ghizeh, are to be seen in the Ashmolean Museum, Oxford.

[3] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, pls. LXXI, 24, 25–7; LXXIV, 7. Marbles of the same shape have also been found in Egypt, where too they are pink limestone: Brunton and Caton-Thompson, *Badarian Civilization*, p. 60.

[4] Dated A. D. 68.

[5] *Nat. Geog. Mag.*, July, 1931, pp. 123-4.

[6] Personal enquiries have failed to elicit information as to the use of stone balls in divination in India at the present day.

rag balls made by Indian children of strips of cotton material torn from their garments.

The balls illustrated in this book are listed for convenience' sake according to the materials of which they are made.

Pottery (*Pls. CVI, 15; CXL, 29; CXLII, 76*).—No. 15 in Pl. CVI (DK 10379). Light red ware; no slip. 1·31 ins. in diameter. Very well shaped. Ornamented all over with regularly placed circles, doubtless in imitation of certain shell balls shortly to be described. Locus: Surface.

No. 29 in Pl. CXL (DK 3859). Light red ware; no slip. Diameter 1·4 ins. Somewhat out of shape. Ornamented all over with pittings, which were perhaps once filled in with a coloured paste. Another pottery ball found during the earlier excavations was somewhat similarly ornamented with little clay pellets pitted in the centre. Locus: Bl. 8, ho. II, rm. 21. Level: — 6·2 ft.

No. 76 in Pl. CXLII (DK 6991). Light red ware: overfired. 1·2 ins. in diameter. Marked all over with incisions made with a semicircular edge. Not perfectly round. Locus: Bl. 10A, rm. 7. Level: — 17·3 ft.

As far as can be ascertained the above three balls are solid.

A number of small, well rounded, baked clay balls, averaging 0·8 in. in diameter, may have been used either as marbles or as pellets for sling or sling-bow.

Faience (*Pls. LXXI, 9; CXXXIX, 91; CXLII, 65*).—No. 9 in Pl. LXXI (SD 2705). Light green and a little out of shape. Average diameter, 1·35 ins. Locus: SD Area, Bl. 1, rm. 67. Level: +2·7 ft.

No. 65 in Pl. CXLII (DK 5682) (see also Pl. CXXXIX, 91). Cream coloured paste; formerly covered with a purplish-black glaze (manganese) which has survived in the lower parts of the decoration. 1 in. in diameter and very well made. This ball has three holes, each 0·12 in. in diameter, pierced right through it at right angles to each other, for what purpose it is difficult to say. It is also ornamented with groups of concentric circles round the holes, in a similar manner to the shell balls. Locus: Bl. 1, central corridor (65). Level: — 13·1 ft.

Shell (*Pls. CXIV, 9; CXVIII, 15; CXL, 30, 37; CXLII, 67, 68*).—Balls of this material are now familiar objects, though only found in the higher levels, *i.e.*, not below 12·4 ft. below datum. They always have the same pattern carved upon them, namely, regularly placed groups of concentric circles. Taking into consideration the constancy of the pattern and the care with which it was carved, I cannot but think that these balls were used for no ordinary purpose.

No. 9 in CXIV (DK 10781 (t)) (see also Pl. CXVIII, 15) is 1·18 ins. in diameter. It is exceptionally well made, and it is probable that the incised portions once held a coloured paste.[1] This ball owes its fine preservation to being buried with other objects in a copper vase (Pl. CXV, 5) which was found in a hoard beneath a floor. Locus: Bl. 14, ho. III, rm. 19. Level: — 4·8 ft.

Nos. 30 and 37 in Pl. CXL were found at the respective levels of — 7·9 ft. and — 6·7 ft. in Bl. 11, ho. III, rm. 29, and Bl. 3, ho. V, rm. 13; Nos. 67 and

[1] Unfortunately, the caustic used to clean the vessel in which this ball was contained has removed all trace of pigment that may once have existed.

68 in Pl. CXLII at the levels —10·9 ft. and —12·4 ft. in Bl. 2, ho. II, rm. 22, and Bl. 1A, rm. 92.

The decoration on these shell balls is more often than not in relief, a feature which necessitated a certain amount of laborious cutting in order to lower the ground between the circles and groups of circles. Only a certain part of a large shell could have been used in the manufacture of a ball such as these. There is sometimes a small natural hole in one side of these objects, but it rarely penetrates very deep as it is due merely to the conformation of the shell. No examples have been found of the use of shell to make marbles of the ordinary smooth type.

Stone (*Pls. LXXI, 7, 8, 10, 13; CVI, 16; CXL, 28, 36; CXLII, 66, 71, 75, 77, 78*).—No. 7 in Pl. LXXI (SD 2862). Hard, variegated stone, mottled brown, green and red. 1·02 ins. in diameter. Beautifully made and finely polished. Locus: SD Area, Bl. 8, rm. 4. Level: + 0·9 ft.

No. 8 (SD 3215). White stone of medium hardness. 1·75 ins. in diameter. Unpolished, and a little out of shape. Locus: SD Area, Divinity Street. Level: — 1·55 ft.

No. 10 (SD 2715 (*a*)). Hard, opaque, black stone. 1·51 ins. in diameter. Beautifully made, but unpolished. Locus: SD Area, Bl. 1, rm. 56. Level: + 3·1 ft.

No. 16 in Pl. CVI (DK 12116). Grey agate, black, veined. 0·88 in. in diameter. Locus: Bl. 13, ho. 11, north of rm. 7. Level: — 10·1 ft.

Plate CXL.—No. 28 (DK 4670). White crystal. 0·43 in. in diameter. Well made and carefully polished. Locus: Bl. 9, ho. VI, rm. 30. Level: — 5·5 ft.

No. 36 (DK 3365). White limestone. 1·62 ins. in diameter. Well made, smooth, but unpolished surface. Locus: Bl. 7, ho. III, rm. 41. Level: — 4·2 ft.

Pl. CXLII.—No. 66 (DK 8338). Alabaster. 1·5 ins. in diameter. Somewhat out of shape through the action of water. Ornamented with incised, concentric circles, regularly arranged like those on the shell balls. Locus: Lane bet. Bls. 9 and 9A (V). Level: —14·6 ft.

No. 71 (DK 7563). White limestone. 1·34 ins. in diameter. Drilled irregularly all over with shallow pittings which probably once held a coloured paste. A hole in this object, 0·18 in. in diameter and 0·62 in. deep, may have been intended to take a pin; if so, this ball should be classed with the pin-heads. Locus: Bl. 7, ho. VII, rm. 57. Level: — 16·5 ft.

No. 75 (DK 7803). Hard grey chert, 1·11 ins. in diameter. Not perfectly spherical. Semi-polished. Locus: Bl. 3, ho. VI, rm. 40. Level: — 18·7 ft.

No. 77 (DK 6036). Amber-coloured agate. 0·69 in. in diameter. Beautifully made and very highly polished. Locus: Bl. 12, ho. V, rm. 97. Level: — 18·5 ft.

No. 78 (DK 8900). Light yellow agate, veined with brown. 1·27 ins. in diameter. Very carefully rounded, but not entirely accurate. Smooth, unpolished surface. Locus: Bl. 1A, rm. 59. Level: —18·1 ft.

Wheels (*Pls. CV, 54; CVIII, 4; CX, 26; CXII, 5*).

A number of toy wheels made of pottery were all found separately, and one from a very low level proves that toy vehicles were made in very early days. These wheels differ from the model wheels frequently found in very ancient Sumerian sites in that the hub projects on one side only instead of both, the other side being usually slightly concave. The merits of having a boss on both sides were, of course, that the wheel was reversible in fitting, and that the boss allowed more free play to the wheel than if it rubbed against the side of the vehicle. Apparently, the wheels of the actual carts and chariots of Sumer were flat on the outside,[1] and presumably also on the inside. It is, therefore, difficult to see why the toy wheels were provided with bosses, unless they were expressly so made to permit of their revolving more easily on the roughly made toy. The wheels of the modern Sindhi cart, which is very like in construction to those made in ancient Sumer, thicken very considerably at the hub so as to provide as wide a bearing as possible for the axle, upon which one wheel is fixed and the other revolves. The model wheels of Mohenjo-daro, therefore, more closely resemble those now used in the villages round the site than they do the ancient wheels of Sumer.[2]

These toy wheels, always somewhat roughly made of the usual potter's clay, in some cases show signs of wear in the axle-hole which suggests that some of them at least revolved on their axles.

It has been suggested that these wheels might equally well have been spindle-whorls; but that they were actually used as wheels is shown by the wear in the holes and the fact that one was found with the toy chariot seen in Pl. CXLII, 83.

No. 54 in Pl. CV (DK 3883). Pottery; no slip. 2·6 ins. in diameter and 0·65 in. thick, including the boss on one side. Hole in centre, 0·21 in. in diameter. Locus: Bl. 3, ho. V, rm. 13. Level: – 9·3 ft.

No. 4 in Pl. CVIII (DK 8691) (see also Pl. CX, 26). Pottery, no slip. 3·1 ins. in diameter by 0·65 in. thick, including boss. Hole, 0·2 in. in diameter. Locus: First Street (6). Level: (?).

No. 5 in Pl. CXII (DK, DG, 75). Pottery; containing a plentiful admixture of coarse lime particles. 4·5 ins. in diameter by 0·9 in. thick. Hole in centre, 0·36 in. in diameter; shows a certain amount of wear. Locus: Bl. 7, deep digging. Level: — 41 ft.

Toy Vehicles (*Pls. LXXXI, 13, 17; CVI, 37, 38; CXLII, 83*).

The toy animals that were mounted on wheels (Pl. LXXXI, 13, 17) are described in Chapter IX on the Figurines and Model Animals.

The most popular wheeled toy, however, seems to have been a model cart, of which the only complete frame is seen in Pl. CXLII, 83, though fragments are numerous at all levels. These cart frames do not exactly resemble the wooden cart-frame of modern Sindh, whose floor at any rate is solid. But in both, stout

[1] Mackay, *Antiquaries Journal*, vol. IX, pp. 26-9, pl. II.

[2] I strongly suspect that the flatness of the Sumerian wheel was due to the difficulty of obtaining hard wood of sufficient thickness.

uprights set in the holes each side of the frame served, or serve, to hold in agricultural produce—often probably in ancient times as now with the aid of matting tied to the poles.[1] It is likely that either matting or nets covered the open floor of the cart of ancient Sindh, as in carts of various designs in parts of India to-day.

No. 83 in Pl. CXLII (DK 9273). *Pottery; no slip.* 4·73 ins. long by 2·36 ins. wide by 0·5 in. thick. Roughly made. Six holes, each some 0·16 in. in diameter, pierced vertically through each side-piece of the frame. A horizontal hole through the cross-bars in the middle and at one end of the frame evidently took the pole of the vehicle. The four central holes in each side, it will be seen, are slightly larger than the others; they served to take the sticks, between whose projecting ends the axle was placed beneath the bottom of the cart. The only wheel of this model cart that was found is like the wheels already described. Locus: Bl. 2, ho. I, rm. 12. Level: – 18·4 ft.

Plate CVI.—No. 37 (DK 11261). Pottery; cream slip. Broken and now 3·3 ins. long by 3·43 ins. wide by 2·47 ins. high. Roughly made, possibly by a child. The axle was passed through holes in the two projections beneath this box-like chariot, whose ends and sides are unfortunately so badly broken that we cannot tell how far they were carried up. Nothing remains of the pole or a hole to take it, but where the piece from the front of the chariot is missing there may have been either a pole of pottery or a holed projection to take a wooden stick. This little vehicle had had a certain amount of use, for the part of the body against which the axle once rested shows a considerable amount of wear.

This chariot approximates in design to some of about the same date that have been found at Kish,[2] it is quite distinct from the simple frame cart. This may be a model of a war-chariot of the type that we know was used in Sumer,[3] and it is unfortunate that it is not better preserved. Locus: West St., bet. Bls. 15 (III) and 18. Level: – 7·6 ft.

No. 38 (DK 11998). Pottery; thick red slip. Now 4·71 ins. long by 3·98 ins. wide by 1·9 ins. thick. The holes in the sides of this frame, of which only one end is perfect, average 0·21 in. in diameter. Though it differs from the first frame described (Pl. CXLII, 83) in being curved, it is in principle the same. Locus: Bl. 8, ho. I, rm. 4. Level: –7·6 ft.

These carts and chariots were probably drawn by two animals abreast, yoked to a pole in the same manner as in the ox-drawn carts to be seen around Mohenjo-daro at the present day.[4] That the pole was practically horizontal is evident from the positions of the holes through which it was passed in the models; it did not project upwards and then downwards in bow form as in the

[1] *Mohenjo-daro and the Indus Civilization*, pl. CLIV, 11. See also Pl. XXIV, a, of this book.

[2] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, pl. XLVI.

[3] Woolley, *Antiquaries Journal*, vol. VIII, pl. V.

[4] *Cf.* certain modern Galician carts whose wheels are remarkably like those of the Sindhi vehicles.

early Sumerian examples.[1] This latter very curious form of shaft which appears to have been peculiar to Sumer and Elam [2] was doubtless necessary since the animals were harnessed and not yoked, owing to the vehicles being very low and adapted for speed rather than capacity.[3] For the present we may conclude that yoked oxen drew the carts, if not the chariots, of Mohenjo-daro in early days as now, though the horse was apparently known, if not actually driven or ridden.[4] In the first book on Mohenjo-daro I pointed out that the chariot first appears in Egypt soon after the Hyksos invasion,[5] but the wheel itself was known before then; curiously enough, it was used in the manœuvring of scaling-ladders as early as the Sixth Dynasty, though as far as we are aware it was not at that time employed in other ways.[6]

Gamesmen (*Pls. LIII, 57–61; LXXXI, 12, 15, 16; CVI, 1, 1A, 2; CXI, 88; CXXV, 27; CXXXVII, 1–7; CXXXIX, 6–12, 15–19, 21; CXL, 1–18, 22–7; CXLII, 53–64, 69, 70, 72–4*).

Some of the stone objects included here amongst the gamesmen are thought by Sir John Marshall to be *lingas*, similar to those carried by Saivites at the present day.[7] This may have been the case with some of the plainer ones,[8] [9] but a great number of these objects could hardly have been used for any other purpose than for a game.[10]

For the sake of brevity, the measurements, materials, levels and find-spots of these objects are tabulated at the end of this chapter, those which are illustrated in line as well as photograph being starred. It will be seen that they vary greatly in shape and finish, and they are found in considerable numbers, many more having been unearthed than it has been possible to illustrate. They occur at all levels, and that fewer have been recovered from the lower strata is to be attributed solely to the fact that we have cleared larger areas of the upper than of the lower levels.

[1] Frankfort, *Tell Asmar and Khafaje*, Oriental Institute, Chicago, pp. 96, 97. Woolley, *Antiquaries Journal*, vol. VIII, pl. V.

[2] *Mém. Dél. en Perse*, t. XII, p. 105, fig. 95.

[3] The bands seen round the necks of the animals in the Ur and Khafaje sculptures, apparently with tassels hanging from them, were certainly some form of harness and not a wooden yoke.

[4] It should be mentioned here that according to the Rámáyana, carts were drawn by asses in ancient India: Mitra, *Antiquities of Orissa*, vol. I, p. 130. For a model animal which I would identify as a horse, see Pl. LXXVIII, II. It is still not quite certain what animals drew the chariots of Sumer. As Frankfort cautiously remarks, "Our choice is evidently limited to horses, asses or mules": *Tell Asmar and Khafaje*, p. 98. But Hilzheimer in *Antiquity*, June, 1935, pp. 133-39, identifies the Sumerian draught-animal as the onager of Hither Asia, confirming Woolley's original identification.

[5] *Mohenjo-daro and the Indus Civilization*, p. 555.

[6] Tomb of Kaemhesit, Saqqāra: Clarke and Engelbach, *Ancient Masonry*, p. 87, fig. 83.

[7] *Mohenjo-daro and the Indus Civilization*, p. 59.

[8] I am told that *lingas* are invariably made of stone.

[9] The simpler examples, such as No. 4 in Pl. CXL, are very like the small mullers used in ancient Egypt for grinding ink on stone palettes; but in no case do they show any indication of this use on their bases.

[10] Similar objects of brown sandstone found at Jemdet Nasr, are also identified as gamesmen: *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, p. 277, pl. LXXI, fig. 19.

The three human-headed figures seen in Pl. LXXXI, 12, 15, 16, appear from their shape to be gamesmen. They are fully described in Chapter IX, on the Statues, Figurines and Model Animals.

For easy reference, I propose to group these objects according to shape rather than the materials of which they are made, and to describe only those of special interest in detail.

(*a*) *Round topped cones* (*Pls. LIII, 57–9, 61 ; CXI, 88 ; CXXXVII, 1, 2 ; CXXXIX, 7, 18 ; CXL, 1–5 ; CXLII, 54, 57, 69*).—Of the seventeen objects of this group that are illustrated, nine are of stone, three of pottery, one of faience, and four of shell. It is significant that no two of them were found together ; and some of the stone examples are made of unusual materials, such as jade (Pl. CXXXIX, 7), lapis-lazuli (Pl. CXXXIX, 18), and variegated stones. Only two are so ordinary a stone as limestone and one of these is yellow (Pl. LIII, 57). The objects in this group range in height from 0·7 to 2·42 ins., with an average of 1·26 ins.

No. 61 in Pl. LIII. Shell. Ornamented with three deep grooves which were undoubtedly once filled in, flush with the surface, with a coloured paste.

No. 2 in Pl. CXXXVII. Semi-hard, black stone with an almost regular band of white round the middle.

No. 3 in Pl. CXL. Shell. Has a small hole of irregular outline pierced through it, which seems to be a natural fissure in the shell from which the object was cut.

No. 54 in Pl. CXLII. Pottery. Is unusual in that it has a vertical hole in its base, 0·12 in. in diameter and 1·3 ins. deep.[1]

No. 57 in the same plate. Shell. Decorated with five deep grooves which were formerly filled in with coloured pastes, red and black. Two of the grooves still show traces of these colours which seem to have been alternately arranged.

(*b*) *Pointed cones* (*Pls. CXL, 2 ; CXLII, 74*).—No. 2 in Pl. CXL, Drab-coloured pottery. Though well shaped, the surface lacks finish.

No. 74 in Pl. CXLII. White, glazed paste ornamented with a band of inlaid paste now yellow. The latter may once have been green to contrast with the colour of the cone which was probably blue.

(*c*) *Straight-sided cones with definite head* (*Pls. LIII, 60 ; CXXXVII, 3, 5 ; CXXXIX, 6 ; CXL, 14, 22 ; CXLII, 55, 58, 59, 61*).—The members of this group are very like those of class (*a*), save that the head is demarcated by a grooved neck. In some the body is ornamented. Of those illustrated, three are pottery, two limestone, and two faience. In all the pottery examples there is a small vertical hole in the base, averaging 0·16 in. in diameter by 0·58 in. deep, possibly to fit on to a peg while being shaped or in a board game of some kind.

No. 5 in Pl. CXXXVII (see also Pl. CXL, 14). Faience, whose glaze is now white. Lower portion ornamented with an inlaid band of yellow paste. Owing to its badly preserved condition, it is uncertain whether the groove between head

[1] These holes occur quite frequently in members of the other groups. They were probably of use in the process of manufacture, but possibly they fitted on to pegs on a board.

and body was also filled in with a similar paste; if so, this gamesman would have approximated to class (*b*) in shape. Head decorated with a number of rough pittings which may also have been inlaid.

Nos. 55 and 58 in Pl. CXLII. Drab-coloured pottery. Decorated with vertical groups of lightly incised chevrons separated by interspaces. In No. 58 the head also is ornamented with a series of engraved strokes.

(*d*) *Cones with incurved sides* (*Pls. CVI, 1, 2; CXXXVII, 4, 6; CXXXIX, 8–10, 15–17, 19, 21; CXL, 6, 7, 8, 10–13, 15, 24; CXLII, 53, 60, 72*).—This is the commonest type of gamesman at Mohenjo-daro.[1] Of those illustrated, twelve are pottery, four stone, four faience, three shell, and one of bone. They average 1·06 ins. high. That some of the pottery examples were most certainly gamesmen is proved by a number being found together, for instance, No. 60 in Pl. CXLII is one of a group of four of light red ware with a cream slip, all practically the same size and make. Each has a small vertical hole in the middle of its slightly concave base.

The group, Nos. 7 and 15 in Pl. CXL, of which individual members are illustrated in line in Pl. CXXXIX, 15, 19, consists of six pieces between 0·81 and 1·05 ins. in height, three of which had a thick red slip, two were dark grey pottery, and one, slightly different in shape from the others, yellowish-pink. All are somewhat roughly made, and though found together they may not have belonged originally to the same set. In shape these pieces closely resemble gamesmen that were used in ancient Egypt for a favourite game of twelve pieces for the two players.[2]

These six gamesmen may have been used on a gameboard like that illustrated in Pl. CXLII, 82. A portion of this board which is scratched on a brick is unfortunately missing and we do not know how many squares it originally possessed.

(*e*) *Regular tetrahedra* (*Pls. CXXV, 27; CXXXVII, 7; CXXXIX, 11, 12; CXL, 16, 17; CXLII, 63, 64, 73*).—This very distinctive form of gamesman, of which numerous specimens have been found from 16·2 ft. below datum upwards, is also well known at Sumerian sites.[3] Why gamesmen of this shape were so popular is not clear, for they are somewhat difficult to pick up and replace. Possibly they were pushed along with the finger and were not taken up as forfeits. All the examples illustrated are glazed paste, except No. 11 in Pl. CXXXIX (see also Pl. CXLII, 63). This gamesman is bronze—a most unusual material—and was evidently cast, for the metal is full of small blow-holes. In Sumer gamesmen of this type were usually made of stone, but we have yet to find them in this material at Mohenjo-daro. As a rule, all the sides are equal so that they could be put down in any position. A few, however, are a trifle higher than the base is wide, but this may be accidental. All were very carefully made, and though

[1] Prof. Petrie has aptly termed these the "light-house" type: *Objects of Daily Use*, p. 53.

[2] In the Second Dynasty of Egypt, this game is shown as played with seven men on each side: Quibell, *Excavations at Saqqāra*, pl. XI. For the comparison of the shape of these pieces, see Petrie, *Objects of Daily Use*, pl. XLVIII, figs. 91, 95, 101, etc.

[3] Mackay, *Antiquity*, Dec., 1931, p. 464.

the glaze has disappeared from some they seem originally to have been blue or green in colour.[1]

(*f*) *Four-sided pyramidal gamesmen* (*Pl. CXL, 18*).—Only one specimen of this type has been found up to the present, made of a dark grey stone, mottled with white. All its angles are slightly rounded. It is definitely rectangular in horizontal section and therefore differs somewhat from the square-based, slate gamesmen known at Jemdet Nasr.[2]

(*g*) *Flat triangular gamesmen* (*Pl. CXL, 23*).—The one gamesman of this shape is carefully made of pottery and bears traces here and there of a red slip. The top and base are flat.

(*h*) *Bobbin-shaped gamesmen* (*Pl. CXL, 9, 26*).—It is doubtful whether No. 9 is actually a gamesman or not.[3] It is 1·9 ins. high, 1·3 ins. in diameter at top and base, and 0·95 in. at the waist. Both ends are very slightly convex and it is made of drab-coloured clay that was slightly under-fired.

No. 26. Faience; with an apple-green glaze. Ornamented with crossed lines of a thick black paint whose colour is probably due to manganese. This object must certainly be regarded as a gamesman; but, decorated in this manner, it is unique.

(*i*) *Cylindrical with flat top and base* (*Pls. CVI, 1a; CXL, 27; CXLII, 70*).—No. 1a in Pl. CVI. A small alabaster cylinder, to each end of which a flat plain cap of black stone was cemented. It tapers slightly from 0·65 in. in diameter at one end to 0·57 in. at the other. The alabaster had been badly corroded by damp.[4]

No. 27 in Pl. CXL is one of the vertebrae of a fish and its polish suggest that it was used as a gaming-piece. Fish-bones such as this make very good gamesmen as the number required can probably be taken from a single fish and they only require cleaning before being used.

No. 70 in Pl. CXLII. Dark-grey steatite. A simple roundel; a shape that is very rare at Mohenjo-daro, but was more commonly used for board games in Sumer and Crete.

(*j*) *Cubical gamesmen* (*Pls. CXXXVIII, 55, 60; CXL, 25; CXLIII, 35*).—The only use we can suggest for these carefully made ivory pieces is that they were gamesmen; they could not have been used as dice, for all six sides bear identically the same device.[5]

[1] A faience gamesman of exactly this type has lately been found at Tell Abu Hawām in Palestine and from the stratum in which it was found is dated to c. 1400-1230 B. C.: Hamilton, *Quarterly of the Department of Antiquities in Palestine*, vol. IV, Nos. 1 and 2, pl. XXXV.

[2] *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, pl. LXXI, 20, 21.

[3] *Cf.*, however, five similar pieces in a group of twelve gamesmen found by the writer at Mazghuneh and dated to the Eighteenth Dynasty: Petrie, Wainwright and Mackay, *Labyrinth, Gerzeh, and Mazghuneh*, pl. XLIII, p. 49. Also *cf.* certain pottery objects from Jemdet Nasr which are similar in shape to those from Egypt and India: *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, p. 277, pl. LXX, figs. 28, 29.

[4] We have before noticed that the variety of alabaster used at Mohenjo-daro is very liable to be partially dissolved in damp soil.

[5] But possibly they were thrown on a squared board marked 1 to 6, a game which used to be played in Europe.

No. 55 in Pl. CXXXVIII (DK 7964). 0·55 × 0·5 × 0·5 ins. Locus: Bl. 8, ho. I, rm. 8. Level: —7·6 ft.

No. 60 in the same plate (DK 5401) (see also Pl. CXL, 25). 0·6×0·55×0·55 ins. Locus: Bl. 10, ho. I, rm. 4. Level: —11·3 ft.

No. 35 in Pl. CXLIII (DK 8305). 0·6×0·6×0·6 ins. Rather better finished than the other two. In the incised pattern, which is the same on all six sides, traces remain of a red pigment. Locus: Bl. 7, ho. IV, rm. 71. Level: —18·2 ft.

Gamesmen (?) (*Pl. CXI, 87*).—Pottery; no trace of slip. 1·38 ins. high and 1·35 ins. wide at the base. Owing to its large size it is uncertain whether this object is actually a gamesman. Locus: Bl. 1, court I (74). Level: —13·4 ft.

Gameboards (*Pls. CVI, 49 ; CXLII, 82*).

We have been fortunate in finding two boards on which same kind of game was played, though unluckily neither is complete. It is likely that most of the gameboards of Mohenjo-daro were made of wood and have therefore perished. That wooden boards were used in Sumer is now well-known from Woolley's discoveries at Ur,[1] and they were elaborately inlaid with shell and other materials. We have, however, not yet found at Mohenjo-daro any inlay that can be definitely associated with gameboards, and if the latter were inlaid, it may have been with substances that perished with the wood.[2]

No. 49 in Pl. CVI (DK 11141). Brick. Now measures 10·7×5·83×2·68 ins. A portion of one end is missing, but the brick is hardly likely to have been much longer. On one of the faces four rows of shallow depressions, averaging 0·58 in. long by 0·4 in. wide by 0·3 in. deep, had been roughly scooped out; and along one side was a row of four, perhaps originally five, square holes, also roughly cut and somewhat unequal in depth. It is impossible to tell how many holes this board once had; there are now fifteen in the best preserved row. All the holes are slightly worn by the picking up and replacing of the gamesmen, and none are marked in any way to distinguish them from one another.

The pieces used with this board were probably seeds of some kind, and judging from the number of pools, certainly four and perhaps five,[3] it would have been possible for one of these two numbers of players to take part in the game. The nearest approach to this board, of which I know, is one of uncertain date from Memphis in Egypt, which had three rows of fourteen holes with a pool at one side.[4] On this latter board also, the holes for the men were only roughly scooped out and it has been suggested that beans or small pieces of pottery were used.

This game may have been very similar to one now played in Uganda, where the gameboards have four rows of eight holes each.[5] In this African game,

[1] *The Royal Cemetery*, pls. 95-7. *Antiquity*, Dec., 1930, p. 425.

[2] There is a possibility that the fretted, round pieces of inlay (Pls. CVII, 14 ; CXLI, 9, 10) may have marked a special place on a gameboard, like the rosettes that were used for this purpose in Sumer and Greece.

[3] On the other hand, the fifth compartment may have been used for special forfeits, in which case the game would have been played by four or less players.

[4] Petrie, *Objects of Daily Use*, p. 55, pl. XLVII, 175.

[5] Braunholtz, *Man*, July, 1931, sect. 131.

however, there are only two players, each of whom uses two adjacent rows of holes for his pieces. The four or five pools at the side of the board at Mohenjo-daro seem definitely to indicate more than two players.[1] Locus: Bl. 21, ho. II, rm. 4 Level: – 5·7 ft.

No 82 in Pl. CXLII (DK 8453) is part of a brick gameboard, now some 5·7 ins. wide by 2·5 ins. thick. Its original length was probably about 11·5 ins. One face of this brick is divided by roughly scored lines into a series of rectangles which average 2·35 ins. long by 1·5 ins. wide. The lengths of these spaces had been fairly carefully set out, but not so the widths. Given that the original length of this brick was some 11·5 ins., it is estimated that there were three rows of four compartments each. There is, however, the possibility that this brick once formed part of a pavement and that the rectangles marked on it were continued on to the bricks on either side. In fact, at the unbroken end the longitudinal lines apparently extend to the edge, and would be unduly prolonged if this were a complete gameboard. One compartment is distinguished from the rest by crossed diagonal lines that evidently mark a "house" or "home". Locus: Bl. 1, western court (61). Level: – 16·2 ft.

If this second board was prolonged at one or both ends, a game like the ancient Egyptian *Sent* could have been played upon it; the *Sent* board had 3×10 squares and the game was played by two people, each of whom had six gamesmen.[2, 3] On some of the Egyptian *Sent* boards one compartment is marked by diagonal lines as on the board from Mohenjo-daro; and, in addition, other signs were used to mark special compartments. There may, therefore, have been other "houses" on the board. My own impression is that the apparently unbroken end of the gameboard of Mohenjo-daro was not necessarily the end of the original board.

Again, this second gameboard may equally well have resembled an inlaid board found by Woolley in an early stratum at Ur, which was divided into three parts; at one end four transverse rows of three squares each, at the other two rows of three squares, and between, two squares side by side. The board of Mohenjo-daro may perhaps represent the larger end of the Sumerian board with its twelve compartments,[4] the other two parts being perhaps marked on other bricks. It is not clear whether another board found at Ur had originally only twelve squares;[5] if so, it would closely approximate to the board from Mohenjo-daro. If, however, it once formed part of a larger board, as I suspect, it would probably have been one end of a gameboard of the kind already described.

[1] In some respects, this board resembles that of the South Indian game *Pallanguli*, in which the number of holes varies. But the holes of the latter are larger and can take six pieces at a time which would not be possible with the board from Mohenjo-daro. In the South Indian game the rows of holes are generally two in number, with a pool for each row: H. G. Durai, *Man*, Nov., 1928, sect. 135, pl. L.

[2] Petrie, *Objects of Daily Use*, p. 51, pls. XLVII, XLVIII.

[3] In a very early version of this game there were seven men a side.

[4] *The Royal Cemetery*, pls. 95-7.

[5] C. Bunt, *Antiquity*, Dec., 1930, p. 425.

Comparison may also be made with a black limestone board from Susa, which has different games marked out on either side.[1] This gameboard is apparently of later date than the boards from Ur, but is none the less interesting from our point of view. On one side, it is divided into fifteen in three rows of five compartments, two of which are marked with crossed lines as on the board from Mohenjo-daro. Unfortunately, one end of this board from Susa is missing, and it is, therefore, possible that there were once more than fifteen compartments.

A gameboard found in tomb 58 at Enkomi (Salamis)[2] has a rectangular block of twelve squares in three rows of four each, from which a row of eight single compartments projects at one end. The broad end of this board is not unlike the game marked out on the brick from Mohenjo-daro. The Greek board has two "houses" in adjacent corners instead of the single "house" in one corner.

It is, however, a far cry to compare any game from ancient India with those of early Egypt and Greece; and we must for the present assume that our gameboard would more probably have resembled those in use in Elam and Sumer.

As knuckle-bones were apparently not used for any game played at Mohenjo-daro, we must suppose that on this second gameboard at least the men were moved in accordance with throws of the dice of which we have found so many. Dice appear to have been as rare in Sumer as they were common at Mohenjo daro, and it is possible that knuckle-bones were used in connection with the Sumerian boards as they definitely were in ancient Egypt.[3] [4]

TABULATION OF GAMESMEN.

Plate.	No.	Dimensions (ins.).				Materials.												Locus.			Level (ft.)	Field No.	Remarks.
		Height.	Length.	Breadth.	Diameter.	Pottery.	Faience or vitreous paste.	Paste.	Ivory or Bone.	Shell.	Bronze.	Alabaster.	Chalcedony.	Agate.	Limestone.	Steatite.	Multi-coloured stone.	Block.	House.	Room.			
LIII	57	1·1	—	—	0·72	—	—	—	—	—	—	—	—	—	×	—	—	8	—	9	+8·6	SD 2794	Yellow.
„	58	1·1	—	—	0·75	—	—	—	—	—	—	—	×	—	—	—	—	1	—	56	+3·1	„ 2715	
„	59	1·0	—	—	0·7	—	×	—	—	—	—	—	—	—	—	—	—	1	—	67	+2·6	„ 3010	
„	60	0·9	—	—	0·5	—	×	—	—	—	—	—	—	—	—	—	—	1	—	73	+1·4	„ 3122	
„	61	1·05	—	—	0·8	—	—	—	—	×	—	—	—	—	—	—	—	1	—	56	+3·0	„ 2703	
CVI	1	1·7	—	—	0·85	×	—	—	—	—	—	—	—	—	—	—	—		Central St.		−6·3	DK 11255	Chocolate slip.
„	1A	0·81	—	—	0·62	—	—	—	—	—	—	×	—	—	—	—	—		West St		−6·1	„ 11496	Alabaster and black stone.

[1] *Mém. Dél. en Perse*, t. 7, pp. 105, 349.

[2] Incised on the lid of a long ivory box, to be seen in the first Greek vase room of the British Museum.

[3] Two ivory knuckle-bones were found in the drawer of a gameboard in the tomb of Tutankhamen: *Nature*, 6/4/29, p. 540.

[4] I do not, however, know any cases of knuckle-bones being definitely associated with board-games in Sumer, though they were found in the "A" graves at Kish as well as at other sites in Sumer.

TABULATION OF GAMESMEN.

Plate.	No.	Dimensions (ins.)				Materials.												Locus.			Level (ft.).	Field No.	Remarks.
		Height.	Length.	Breadth.	Diameter.	Pottery.	Faience or vitreous paste.	Paste.	Ivory or Bone.	Shell.	Bronze.	Alabaster.	Chalcedony.	Agate.	Limestone.	Steatite.	Multi-coloured stone.	Block.	House.	Room.			
CVI	2	1·12	—	—	0·7	—	—	—	—	×	—	—	—	—	—	—	—	25	I	7	–5·7	DK 11292	
CXI	88	0·9	—	—	0·65	—	—	—	—	—	—	×	—	—	—	—	—	11	III	25	–18·2	„ 5566	
CXXV	*27	0·64	0·53	0·53	—	—	—	×	—	—	—	—	—	—	—	—	—	9	X	82	–8·4	„ 12037	Green glaze.
CXXXVII	1	0·7	—	—	0·7	—	—	—	—	—	—	—	—	—	×	—	—	7	VIII	23	–6·0	„ 4060	
„	2	0·93	—	—	0·53	—	—	—	—	—	—	—	—	—	—	—	×	7	V	54	–4·5	„ 3311	Black with white vein.
„	3	1·3	—	—	0·6	—	—	—	—	—	—	—	—	—	×	—	—	Bet. Bls. 7 and 8			–3·0	„ 3333	Light yellow.
„	4	1·0	—	—	0·8	—	×	—	—	—	—	—	—	—	—	—	—	*1*	*II*	*8*	*–10·1*	„ 4397	
„	*5	0·8	—	—	0·42	—	×	—	—	—	—	—	—	—	—	—	—	9	VIII	21	–7·5	„ 8056	White with yellow inlay.
„	6	0·76	—	—	0·57	—	×	—	—	—	—	—	—	—	—	—	—	4	—	14	–6·1	„ 4034	Yellow vitreous paste.
„	7	0·61	0·61	0·61	—	—	×	—	—	—	—	—	—	—	—	—	—	7	VII	52	–9·5	„ 8027	
CXXXIX	*6	1·82	—	—	0·76	—	—	—	—	—	—	—	—	—	×	—	—	First St. (2)			–15·4	„ 8047	
„	7	1·12	—	—	0·7	—	—	—	—	—	—	—	—	—	—	—	—	2	II	25	–15·3	„ 4079	Jade.
„	*8	1·0	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	First St. (15)			–13·9	„ 7968	Blue vitreous paste.
„	*9	0·91	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	1	I	21	–19·5	„ 8968	Yellow.
„	10	1·35	—	—	0·66	—	—	—	—	—	—	—	—	—	×	—	—	Bet. Bls. 1 (I) and 2			–20·3	„ 9231	
„	*11	0·9	0·9	0·9	—	—	—	—	—	—	×	—	—	—	—	—	—	Bet. Bls. 1 and 7			–13·8	„ 6642	Cast.
„	*12	0·7	0·7	0·7	—	—	×	—	—	—	—	—	—	—	—	—	—	7	III	51	–16·2	„ 8110	
„	15	1·0	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	9	VIII	15	–9·1	„ 8126	Red, dark grey and pink clays.
„	16	1·0	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	7	III	48	–14·8	„ 8245	Dark grey clay.
„	17	0·98	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	9	II	11	–13·1	„ 8225	Chocolate slip.
„	18	0·8	—	—	0·5	—	—	—	—	—	—	—	—	—	—	—	—	2	II	25	–15·2	„ 4020	Lapis-lazuli.
„	*19	9·8	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	9	VIII	15	–9·1	„ 8126	Red & black clays.
„	21	2·0	—	—	1·1	—	—	—	—	×	—	—	—	—	—	—	—	2	I	10	–15·4	„ 4370	
CXL	1	2·42	—	—	1·15	×	—	—	—	—	—	—	—	—	—	—	—	7	VI	61	–7·6	„ 6516	
„	2	2·1	—	—	1·55	×	—	—	—	—	—	—	—	—	—	—	—	7	VIII	16	–7·0	„ 3495	Drab coloured clay.
„	3	1·0	—	—	0·64	—	—	—	—	×	—	—	—	—	—	—	—	9	IX	65	–8·6	„ 12670	
„	4	1·12	—	—	0·58	—	—	—	—	—	—	—	—	×	—	—	—	7	VIII	28	–8·5	„ 4853	Gray, mottled with red and grey.
„	5	0·9	—	—	0·55	—	—	—	—	—	—	—	—	—	—	—	×	9	XII	90	–7·9	„ 11732	Breccia, red, white and yellow.
„	6	1·0	—	—	0·5	×	—	—	—	—	—	—	—	—	—	—	—	9	VII	18	–9·2	„ 5966	Red slip.
„	*7	1·0	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	9	VIII	15	–9·1	„ 8126	Red and black clays.
„	8	1·1	—	—	0·73	—	—	—	—	×	—	—	—	—	—	—	—	9	XII	92	–8·1	„ 10699	
„	9	1·9	—	—	1·3	×	—	—	—	—	—	—	—	—	—	—	—	9A	VIII	50	–12·3	„ 12917	
„	10	0·98	—	—	0·7	—	—	—	—	—	—	—	×	—	—	—	—	9	X	55	–5·6	„ 10684	White.
„	11	0·9	—	—	0·7	—	×	—	—	—	—	—	—	—	—	—	—	9	IX	66	–7·3	„ 11801	Blue vitreous paste.

TABULATION OF GAMESMEN.

Plate.	No.	Dimensions (ins.). Height.	Length.	Breadth.	Diameter.	Materials. Pottery.	Faience or vitreous paste.	Paste.	Ivory or Bone.	Shell.	Bronze.	Alabaster.	Chalcedony.	Agate.	Limestone.	Steatite.	Multi-coloured stone.	Locus. Block.	House.	Room.	Level. (ft.).	Field No.	Remarks.
CXL	12	1·0	—	—	0·72	—	—	—	—	—	—	—	—	×	—	—	—	9	X	86	−8·2	DK 11785	
,,	13	1·23	—	—	0·83	—	—	—	×	—	—	—	—	—	—	—	—	9	IX	65	−7·3	,, 11800	
,,	*14	0·8	—	—	0·42	—	×	—	—	—	—	—	—	—	—	—	—	9	VIII	21	−7·5	,, 8056	
,,	*15	0·3	—	—	—	×	—	—	—	—	—	—	—	—	—	—	—	9	VIII	15	−9·1	,, 8126	Red & black clays.
,,	16	0·65	0·55	0·55	—	—	×	—	—	—	—	—	—	—	—	—	—	10	IV	70	−6·6	,, 4791	
,,	*17	0·54	0·53	0·53	—	—	—	×	—	—	—	—	—	—	—	—	—	9	X	82	−8·4	,, 12037	Green glaze.
,,	18	0·8	0·71	0·45	—	—	—	—	—	—	—	—	—	—	—	—	×	9	VIII	49	−7·2	,, 12947	Dark grey stone with white veins.
,,	22	0·78	—	—	0·62	—	×	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 1 (V) & 10			−8·3	,, 5361	
,,	23	0·27	0·97	0·97	—	×	—	—	—	—	—	—	—	—	—	—	—	9	X	55	−1·7	,, 10521	Red slip.
,,	24	1·3	—	—	0·57	×	—	—	—	—	—	—	—	—	—	—	—	9	VI	31	−5·8	,, 4665	
,,	25	0·6	0·55	0·55	—	—	—	—	×	—	—	—	—	—	—	—	—	10	I	4	−11·3	,, 5401	
,,	26	0·65	—	—	0·5	—	×	—	—	—	—	—	—	—	—	—	—	12	V	96	−10·9	,, 5622	
,,	27	0·4	—	—	0·9	—	—	—	×	—	—	—	—	—	—	—	—	9	VI	36	−11·15	,, 8060	
CXLII	53	0·96	—	0·62	—	—	—	—	—	—	—	—	×	—	—	—	—	10	I	4	−12·3	,, 5483	White.
,,	54	1·95	—	1·4	—	×	—	—	—	—	—	—	—	—	—	—	—	1	III	1	−13·2	,, 5814	Dark red slip.
,,	55	1·4	—	0·53	—	×	—	—	—	—	—	—	—	—	—	—	—	9	VII	52	−13·0	,, 6549	Grey clay.
,,	*56	1·0	—	—	—	—	×	—	—	—	—	—	—	—	—	—	—	First St. (16)			−13·9	,, 7968	Blue vitreous paste.
,,	57	0·79	—	—	0·48	—	—	—	—	×	—	—	—	—	—	—	—	Bet. Bls. 1 (I) & 2			−14·4	,, 7138	
,,	58	1·05	—	—	0·42	×	—	—	—	—	—	—	—	—	—	—	—	1	III	17	−13·5	,, 6065	Dark grey clay.
,,	59	1·42	—	—	0·81	×	—	—	—	—	—	—	—	—	—	—	—	Bet. Bls. 12 & 12A			−18·6	,, 5505	Cream slip.
,,	60	1·21	—	—	0·7	×	—	—	—	—	—	—	—	—	—	—	—	3	VI	47	−20·7	,, 7544	Cream slip.
,,	61	1·82	—	—	0·76	—	—	—	—	—	—	—	—	—	×	—	—	First St. (2)			−15·4	,, 8047	
,,	*62	0·91	—	—	—	—	—	—	—	—	—	—	—	—	×	—	—	1	I	21	−19·5	,, 8988	Yellow.
,,	*63	0·9	0·9	0·9	—	—	—	—	—	—	×	—	—	—	—	—	—	Bet. Bls. 1 and 7			−13·8	,, 6642	Cast.
,,	*64	0·7	0·7	0·7	—	—	×	—	—	—	—	—	—	—	—	—	—	7	III	51	−16·2	,, 8110	
,,	69	0·85	—	—	0·75	—	—	—	—	×	—	—	—	—	—	—	—	Bet. Bls. 1 (I) & 2			−17·8	,, 7417	Burnt.
,,	70	0·38	—	—	0·8	—	—	—	—	—	—	—	—	—	—	×	—	Bet. Bls. 1 (III) & 7			−13·4	,, 6419	Dark-grey.
,,	72	1·11	—	—	0·75	—	×	—	—	—	—	—	—	—	—	—	—	1A	—	90	−20·1	,, 5399	Light-blue.
,,	73	0·85	0·85	0·85	—	—	×	—	—	—	—	—	—	—	—	—	—	1	I	83	−14·5	,, 6386	White.
,,	74	0·45	—	—	0·52	—	—	×	—	—	—	—	—	—	—	—	—	Bet. Bls. 9A & 12A			−15·7	,, 5381	Yellow and white.

CHAPTER XVI.

IVORY, SHELL, FAIENCE, AND OTHER OBJECTS OF TECHNICAL INTEREST.

Ivory.

I have little to add to my discussion of the use of this material in the first book on Mohenjo-daro.[1] There is no doubt that ample supplies of ivory were obtainable at Mohenjo-daro, but whether it was imported into Sindh from other parts of India or local supplies were available we do not yet know.[2] Of great interest in this connection is the fact that two tusks (Pl. CXI, 72) were found with a group of nine skeletons huddled together (Pl. XXXII, a and b; p. 614, fig. 1), which are described in Chapter V, pp. 116-18. They had suffered very badly from the saltiness and dampness of the soil, so that a great part of them had fallen to pieces which we were unable to put together again. The longer tusk in the photograph is now 3 ft. 9·5 ins. in length and the smaller one 2 ft. 7·5 ins., and they average 6 ins. in diameter at the base. It is possible that both these tusks were nearly 5 ft. long.[3] So much was ivory used that bone takes a very subordinate place; in fact, this latter material is rare.

A remarkable piece of carved ivory is reproduced in Pls. CXLII, 48, 49; CXLIII, 15, and described in Chapter X, p. 324. This object is apparently the top or basal portion of a cosmetic jar and well exemplifies the skill of the craftsman. Yet, curiously enough, no human or animal figure has yet been found carved in ivory in the round—a rather striking fact in view of the number of other materials used in the making of these figures.

An excellent illustration of the difficulty met with in cutting this material is afforded by an unfinished ivory plaque (DK 12907) (Pl. CV, 57). This plaque is an average of 3·21 ins. long by 1·59 ins. wide and 0·3 in. thick. The saw marks which are clearly discernible on both sides run in every direction; the ivory-worker evidently had great difficulty in cutting the material and worked towards the centre from all sides. Locus: Bl. 9, ho. IX, rm. 68. Level: $-11 \cdot 8$ ft.

Shell.

Shell was extensively used, especially in the making of ornaments and pieces of inlay. The natural shells that we have found, either used as material for the shell-worker or worn as beads or amulets,[4] comprise several different genera, for whose identification in the following list I have to thank Dr. B. Prashad of the Zoological Survey of India.

[1] Marshall, *Mohenjo-daro and the Indus Civilization*, pp. 562-3.

[2] The wild elephant is quite extinct in N. W. India; but there is some evidence that the climate has changed since the early part of the third millennium B. C., and it is possible that at that period it roamed Sindh and the Panjāb. The fauna of the seals, in which the elephant takes a fairly prominent place, was probably that of the Indus valley of those days.

[3] The tusks of the Indian elephant of to-day are, however, sometimes nearly nine feet long and approach a weight of 100 lbs.

[4] For the efficacy of shells, both sea and fresh-water kinds, as amulets, see Mackenzie, *Ancient Man in Britain*, pp. 37-42.

No. 46 in Pl. CVI (DK 10801). *Murex (Chicoreus) ramosus*, Linn. 9 ins. long. Locus: Bl. 18, rm. 7. Level: – 5·6 ft.

Plate CXI.—No. 54 (DK 6094). Fragment of coral.[1] *Favia hululensis*, Gardiner. 2·05 ins. long. Locus: Bl. 4, rm. 12. Level: – 18·2 ft.

No. 64 (DK 6426). *Murex (Tribulus) tenuispina*, Lamarck. 2·31 ins. long. Locus: Bl. 7, ho. I, rm. 19. Level: – 13·7 ft.

No. 65 (DK 9156). *Nerita albicella*, Linn.[2] White and yellow-green. 1·07 ins. long. Locus: Bl. 3, ho. I, rm. 5. Level: – 16·4 ft.

No. 69 (DK 6761). *Arca granosa*, Linn. Ivory coloured, tinged with red. 2·7 ins. long. Locus: Bl. 3, ho. IV, rm. 48. Level: – 13·9 ft.

No. 70 (DK 6708). *Oliva sp.* Owing to the removal of the spire, the species cannot be identified.[3] Ivory coloured, with very faint touches of red. Now 1·55 ins. long. Locus: Low Lane, bet. Bls. 6 and 7. Level: – 12·6 ft.

No. 77 (DK 8421). Mussel, *Lamellidens marginalis*, Lamarck; prob. *var. rhadinaeus*, Annadale and Prashad. Bleached by damp and salt. 3·55 ins. long. Locus: Bl. 7, ho. VIII, rm. 25. Level: – 18·7 ft.

No. 83 (DK 9200). *Oliva* (perhaps *nigrita*, Mart.). Burnt. 1·21 ins. long. Locus: Crooked Lane, east of Southern wing of Block 1. Level: – 18·7 ft.

No. 84 (DK 8157). *Potamides (Pyrazus) palustris*, Linn. Ivory coloured, tinged with red. Slightly damaged. 3·91 ins. long. Locus: First Street (6). Level: – 15·5 ft.

No. 85 (DK 6510). *Arca granosa*, Linn. Perfect. 1·92 ins. long. Locus: Block 1, eastern court (21). Level: – 12·6 ft.

Plate CXLI.—No. 41 (DK 5410). *Oliva sp.* Spire removed. Pink, slightly dappled with red. 1·5 ins. long. Locus: Loop Lane, bet. Bls. 12 and 12A. Level: – 11·3 ft.

No. 42 (DK 3678). *Oliva sp.* Spire removed. 0·7 in long. Locus: Bl. 7, ho. II, rm. 89. Level: – 10·7 ft.

No. 43 (DK 4488). *Arca granosa*, Linn. Perfect. 2·3 ins. long. Locus: Bl. 7, ho. VIII, rm. 53. Level: – 4·1 ft.

No. 44 (DK 10688). *Strombus laciniatus*, Dilwyn. Perfect. 7·94 ins. long. Locus: First Street (24). Level: – 8 ft.

No. 45 (DK 4760). *Conus hebrāeus*, Linn. Ivory coloured, with red bands and markings. Perfect. Locus: Bl. 19, rm. 10. Level: – 9·4 ft.

No. 49 (DK 5845). *Triton (Cymatium) lotorium*, Linn. Ivory coloured, tinted in places with pink. Perfect. 4·7 ins. long. Locus: Bl. 7, ho. I, rm. 19. Level: – 11·7 ft.

[1] Coral is regarded in India as a specific against various ailments; it is ground up and used as a medicine: Crooke, *Folklore of Northern India*, II, pp. 16-17. For another specimen of coral, see *Mohenjo-daro and the Indus Civilization*, p. 666.

[2] This shell has also been found in Badarian graves in Egypt: Brunton and Caton-Thompson, *Badarian Civilization*, p. 38.

[3] Also found with the spire removed in very early graves in Egypt: Petrie, *Amulets*, p. 28.

No. 50 (DK 12875). *Galeodes galeodes*, Lam. In fragments. 3·52 ins. long. Locus: First Street (24). Level: – 13·1 ft.

No. 51 (DK 3484). *Conus hebräeus*, Linn. Red markings on a cream ground. Perfect. 1·2 ins. long. Locus: Bl. 9, ho. VIII, rm. 19. Level: – 3·6 ft.

Other shells that have been found, but which are not illustrated, are:—

Parreyssia favidens, Benson. Fresh-water mussel, widely distributed throughout India and Burma.

Nassarius sp.

Cuma carinifera, Lam.

Oliva inflata, Lam.

Potamides (*Telescopium*) *sp.*, Linn.

It will be noticed that the species of the genus *Oliva* (No. 70 in Pl. CXI and Nos. 41 and 42 in Pl. CXLI) could not be determined owing to the spire or pointed end having been ground down. These shells were perforated in this way to be worn as ornaments.[1] The beauty of their markings was evidently appreciated, and they probably had some amuletic value attributed to them.[2]

The *mussel shell* (Pl. CXI, 77) is fairly commonly found at Mohenjo-daro and was probably used as a spoon. Though the nacre is beautiful, this shell is too thin and unsubstantial to be used for making inlay.[3] It is suspected that it was this species of shell that was imitated in copper for dishes or spoons (Pl. CXXI, 33, 37).[4] The fresh-water mussel has a very wide range, from the mountains of Afghānistān to Ceylon, and from Seistān to Burma and possibly even Java and South China.[5]

Cockle shells (Pls. CXI, 69, 85; CXLI, 43), all of the same species, were probably used as in early Sumer to hold cosmetics.[6] The cockle may, of course, have been eaten; but, if so, we should expect to have found more shells at the site.[7]

1 A similar treatment of *Oliva* shells has been observed in Badarian graves: Brunton and Caton-Thompson. *Badarian Civilization*, p. 38. At Tell Asmar also the spire was removed in order to string this type of shell: *Illust. Lon. News*, July 15, 1933, pl. I.

2 Shell amulets are known from very early times: Elliot Smith, *Human History*, p. 320.

3 Certain pottery vessels of the "A" cemetery at Kish were ornamented with small pieces of the shell of the fresh-water mussel of Mesopotamia, *Anodonta rhomboidea*, set in bitumen: Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. I, p. 136. *Archæologia*, LXX, p. 126.

4 See also *Mohenjo-daro and the Indus Civilization*, pl. CXLI, 7. For a pottery specimen, see Majumdar, Explorations in Sind, *Mem. Arch. Surv. Ind.*, No. 48, p. 12, pl. XV, 13. Cardium shells were imitated in gold and copper at Ur and Kish about 2,600 B. C.

5 *Rec. Ind. Mus.*, XVIII, (1919), p. 61.

6 The painted cockle-shells found in the Repositories at Knossos were possibly put to the same use: Evans, *Palace of Minos*, I, p. 517. And cosmetic shells were common in the "A" cemetery at Kish: *Anthropology Memoirs*, Field Museum, Chicago, vol. I, pp. 14, 15. In the earlier work at Mohenjo-daro two cockle-shells were found together, one containing a red pigment and the other black.

7 Though the sea was nearer to Mohenjo-daro than now, the cockles could hardly have been eaten fresh. They may, however, have been pickled, as they are in Spain to-day.

Only one *cowrie shell* has been found as yet, and it is probable that it was not used either as an amulet[1] or as currency. No. DK 9543, which is not illustrated, is 1·05 ins. long and is the ordinary white species. Locus: Bl. 7, ho. I, rm. 14. Level: – 26·7 ft.

With the exception of the fresh-water mussel, all the shells in the above list are found in the Indian Ocean and Persian Gulf, and some have an even wider range than those two seas.

Shell-working.

The shell-workers of Mohenjo-daro seem to have experienced a good deal of difficulty in cutting shell, of which No. 86 in Pl. CXI provides a good example. This fragment (DK 6108) which is part of the columella of a large *conch* had been trimmed to a roughly rectangular shape, some 2×1·11×0·9 ins.. An attempt was then made to divide it with a saw, cutting it all round. But the kerfs which were some 0·02 in. wide failed to meet, though the cleanness of them shows that a sharp blade was used, and the task was never completed. Locus: Bl. 4, rm. 12. Level: – 18·2 ft.

The shell object (DK 9705) in Pl. CXI, 89, which is 1·75 ins. long by 1·15 ins. and 0·44 in. at the larger and smaller ends respectively, might be thought to be a handle; but though a part of the smaller end is missing there is no sign of a hole into which a blade or other tool could have been affixed. Locus: Fore Lane, bet. Bls. 1 and 10 (I). Locus: – 29·6 ft.

Of the carved pieces of shell illustrated in Pls. CXXXVI, 62 (DK 10169); CXLI, 22 (DK 3466), several have been found, though none were unbroken. These pieces follow the natural curvature of the material and were probably ring-like when complete, being cut from the columella of a large shell. They can hardly have been beads, and my original suggestion that they were strung on a rod alternating with similar rings of some perishable material seems to hold good, though in the first book on the site I grouped these objects for convenience' sake with the pieces of inlay.[2]

No. 62 in Pl. CXXXVI is estimated to have been 0·97 in. in diameter when complete. It is 0·8 in. high, with the wall 0·32 in. thick. Though cut out with a saw, some portions not required seem to have been removed with a chisel. Locus: Surface. Level: – 2·1 ft.

The second piece (Pl. CXLI, 22) is 0·52 in. high, and the hole through its centre 0·64 in. in diameter. Locus: Low Lane, bet. Bls. 6 and 7. Level: – 8·6 ft.

Why so many objects were made of shell when ivory was apparently so plentiful it is difficult to comprehend; ivory is more easily worked, is nearly as strong as shell, and not so brittle. Unless we are to assume that the objects of ivory were imported ready made from other parts of India, for which we have

[1] In Sindh and other parts of India to-day, the cowrie is highly valued as a protection against the evil eye, and also as a fertility charm. Nor are these attributes of the cowrie confined to India. In ancient Egypt, especially during the Middle Kingdom, the shell was copied in metal and stone.

[2] *Mohenjo-daro and the Indus Civilization*, p. 569, pl. CLVI, 4, 5.

no evidence, we can only conclude that the question of economy entered into the matter and that shell was a less expensive material.[1]

Faience and Vitreous Paste.

In the first book on Mohenjo-daro, I described in detail the various kinds of faience and vitreous and other pastes that were used, and it only remains to describe and discuss a few of the more recently found objects.

In Pl. CXI, 56, 66, two sides are shown of a mass of turquoise-blue vitreous paste, 2·28 ins. long by 1·6 ins. wide and 0·3 in. thick. The lower photograph distinctly shows the impression of some fabric on which the paste was poured or dropped to set. The upper side of the lump (No. 55) is seen to have puckered slightly in the process of cooling or drying. Another slab of vitreous paste is illustrated in the earlier book on the site.[2] Like the balls of frit that are so common in Egypt, these slabs were perhaps intended to be ground up in water and used as a paint on objects to be glazed.[3] Locus: Bl. 1, ho. VI, rm. 64. Level: – 14·6 ft.

Nos. 67 and 68 in Pl. CXI (DK 5853 and 5843) are two pieces of inlaid paste, one 1·2 ins. long by 0·92 in. wide, the other 1·13 ins. long by 0·41 in. wide, which evidently belong to one another, though they do not fit together. They were found in rm. 12 of the annexe (Bl. 4) of Block 1 at the levels – 14·9 and – 14·3 ft., and may be parts of a large bead. This paste is now white and the bands of inlay, which are 0·1 in. wide and 0·01 in. deep, are black.[4]

Stone-working.

Two objects recently found throw an interesting light upon the stone-worker's craft, as practised at Mohenjo-daro. Nos. 9 and 18 in Pl. CVI (DK 11046) show the two sides of a rectangular slip of light brown stone, that has been identified by the Director of the Geological Survey of India[5] as a foraminiferal limestone. One end is missing and the slip now measures 3·1×0·97×0·38 ins. All the faces of this piece of stone were sawn and then semi-polished, save one which still shows the saw marks (No. 18), which, it is interesting to note, show that the stone-cutter experienced some difficulty in dealing even with such a comparatively soft stone as this.[6] The two longer edges of this plaque are very slightly bevelled, which

[1] Possibly the tabular dice and casting-sticks were not made of shell owing to the risk of breakage.

[2] *Mohenjo-daro and the Indus Civilization*, pp. 574-75 ; pl. CLIV, 2, 3.

[3] Mr. Horace Beck suggests that vitreous paste was made of crushed quartz mixed with about 2 per cent. of lime as a flux. He further remarks that the only objection to this mixture is the great heat necessary to fuse the two ingredients. See Brunton, *Qau and Badari*, II, p. 24.

[4] It was probably coloured with manganese.

[5] Dr. Fermor states that it bears a very close resemblance to the Jaisalmir limestone of Rājputāna, which is of Jurassic age.

[6] That even copper was cut with a saw is proved by a copper rod (Pl. CXIX, 13) which was cut from all sides until it could be snapped. Whether an ordinary blade-saw was used on this rod or a wire one, it is difficult to say ; but in either case an abrasive, such as fine sand or emery, was probably used with it.

suggests that it was intended for a piece of inlay, an idea which is supported by the one face being left unpolished. Locus: Bl. 21, ho. II, rm. 8. Level: – 5·7 ft.

No. 63 in Pl. CXI (DK 9240) is a small fragment of dark red carnelian, 1·09 ins. long by 0·45 in. wide by 0·12 in. thick. The back had been rubbed down flat, and its face and edges show signs of very careful and minute flaking. This unfinished object is unlikely to be an arrow-head, for no stone arrow-heads have yet been found at Mohenjo-daro; nor would the back be smoothly ground, if so.[1] Possibly it was to be a piece of inlay, though there is no evidence that hard stones were ever used as inlay by the Indus Valley people. But whatever its purpose, this object shows clearly that stone flaking had survived even into this age of metal, and that one man at least at Mohenjo-daro was an expert craftsman in this work.[2] Locus: Bl. 2, ho. I, rm. 8. Level: – 18 ft.

Inlay.

Quite a number of pieces of inlay have been found at all levels. Some of the shapes have already been illustrated in the first book on the site; others are new to us. To facilitate description these latter pieces are grouped according to the material of which they were made. Though there is now a very considerable collection in the museum at Mohenjo-daro of fragments of inlay which seem once to have decorated articles of furniture, of which the wood has totally disappeared, only in a few cases have two or more pieces of inlay been found together; the principal find was made by Rai Bahadur Daya Ram Sahni, in the HR Area in season 1926-7.[3] Though this collection may or may not have ornamented an article of furniture, perhaps a box, it is significant that with it were several pieces of waste shell; it is therefore possible that the pieces of inlay comprised in this collection had never actually been used. I mention this point because it seems probable that not everybody at Mohenjo-daro owned furniture that was ornamented with inlay work; otherwise we should have found more pieces of inlay, since shell, of which most of it is made, is practically indestructible.[4]

As in Sumer, shell was the material most often used for inlay work. Only one ivory piece of inlay has been found as yet (Pls. CV, 44; CXXV, 15). That the pieces of shell inlay were cut at Mohenjo-daro, and not imported ready cut, is evident from the finding of workshops where it was done. We know nothing as yet about the carving of ivory in the ancient city, for the only unfinished piece of ivory found as yet is the plaque (Pl. CV, 57) already discussed earlier in this chapter.

[1] I am of opinion that this object was unfinished and that it was intended to grind its surface smooth all over.

[2] For other examples of expert flaking, see *Mohenjo-daro and the Indus Civilization*, p. 585, pl. CXXXIII, 19, 20. Beads of hard stone were also shaped by flaking.

[3] *Op. cit.*, pp. 195, 565-70, pls. CLV, 34, 35; CLVI, 12.

[4] It is possible, of course, that inlay was used very sparsely in the ornamentation of furniture and that one piece sufficed to ornament such articles as toilet-boxes. The round pieces (Pls. CVII, 14; CXLI, 9, 10) may have been used to mark a special place, or "house", on a game-board, like the rosettes commonly used for this purpose on the game-boards of Greece and Sumer.

In all probability the interiors of the fretted pieces of inlay were filled in with coloured pastes, and they would have presented a very gay appearance. Even the plainer pieces of inlay on which a design was incised were brightened up by filling in these designs with colour, red or black (Pl. CXLII, 32, 38).

Possibly inlay was also used as in Sumer for portraying scenes, and it is fair, I think, to regard Nos. 24 and 25 in Pl. CXLI and No. 40 in Pl. CXLII as fragments of a once elaborate scene, though whether they were parts of human figures is not yet certain. The Sumerian practice of building up scenes of animals and figures in both shell and mother-of-pearl inlay[1] must have been well known to the people of Mohenjo-daro, and I cannot but think that there must have been some valid reason for similar work not being done there also.

The comparative scarcity of pieces of inlay made of faience and vitreous pastes is perhaps due to the difficulty and expense of making complex shapes in these materials, though that it was sometimes done is proved by No. 28 in Pl. CXLII. As a rule, when faience or glazed pastes were used the pieces were simple in shape, *e.g.*, Nos. 2 and 3 in Pl. CXLI.

The frequently found shape seen in Pl. CXLI, 11–13, is, I think, intended to represent an ear. Its strong similarity to the ears of the fine steatite portrait-head illustrated in the first book on the site[2] is significant. Even the more elaborate pieces of this type, such as those illustrated in Pl. CVI, 4, 5, still strongly suggest the ear with an ear-hole added. The steatite pectoral or amulet (Pl. CXL, 59) discussed in Chapter XIV, p. 546, on the Personal Ornaments may have had some religious significance. The wearer was perhaps regarded as the *ear of the god*, whose animal emblem it may be that is cut in shell on the amulet. Whether this ear motif, which it should be mentioned, does not appear on the pottery, was in general use on ceremonial articles is not yet known. In fact, it is not impossible that votive plaques were thus ornamented in the manner of the ear tablets of the Eighteenth Dynasty from Memphis in Egypt, where the ear occurs singly, doubly or in numbers, and was sometimes accompanied by the figure of the god Ptah, the patron deity of the city.[3] Sir Flinders Petrie regards the ears on these tablets as representing the ears of the god to receive and preserve the prayers breathed into them.

Stone Inlay (*Pls. LXXI, 4 ; CVI, 11, 12 ; CXLI, 1, 16, 25 ; CXLII, 29*).

No. 4 in Pl. LXXI (SD 2726). Glazed steatite ; light green. Leaf-shaped, with slightly bevelled edge. This piece of inlay was perhaps intended to represent a pipal leaf, but, as the tip of the leaf is missing and the incurved base is not quite

[1] Mother-of-pearl was evidently not valued at Mohenjo-daro, for only one article of this material has been found ; namely, the bead in Pl. CXXXVII, 43. As the pearl shell is only found in the Persian Gulf and the shallow waters between Ceylon and India, it may be that its scarcity prohibited its use. On the other hand, one would have thought that it could have been obtained, if required, in the course of trade between India and Sumer, in which country it was extensively used, especially in the period c. 2,600 B. C.

[2] *Mohenjo-daro and the Indus Civilization*, pl. XCVIII, 3, 4.

[3] Petrie and Walker, *Memphis I*, pp. 7, 8 ; pls. IX–XIII. These tablets are of stone or faience, and are not inlaid.

like that of a pipal leaf, we cannot be certain of this identification. Locus: SD Area, Alley bet. Bls. 6 and 8. Level: + 2·9 ft.

Nos. 11 and 12 in Pl. CVI (DK 11404, DK 12097) show the front and back of a slab of inlaid steatite which apparently once formed part of a yet larger plaque, that may, or may not, itself have been inlaid in some other material. Indeed, several pieces of this kind of inlay have been found in the DK Area and may have belonged to the piece illustrated or to others like it (Pl. CXLI, 16). It is certain that these pieces of inlaid stone once served a very important purpose, and that this one was purposely smashed seems evident from the smallness of the pieces found. Possibly a shrine ornamented with this inlaid stone was broken up by the same people who so badly damaged the few stone statues that have been unearthed.[1]

This interesting fragment of inlaid stone is 6·4 ins. long, by 1·9 ins. wide and 0·55 in. thick. The flat border along one side of the inlaid design is 0·67 in. wide and has four well drilled holes pierced through it, each 0·12 in. in diameter. The two rows of crescentic cells, which average 0·12 in. deep were originally filled in with what appears to be a steatite paste, of which traces remain here and there. This inlay seems to have been inserted when moist as what is left fits very well; and it was levelled flat with the face of the stone. It is probable that as no colour now remains, the inlaid paste was covered with a brilliant blue or green glaze rather than stained; and if so, the result would have been very striking.

Though we have only this double row of crescents, the stepping of the edge and one end of the block suggests that other pieces of steatite were added to repeat the pattern and make quite a large panel. The other end of the block is broken off. There are two roughly scratched marks on the back, one V-shaped and the other comprising four parallel strokes, which probably served as guides for the fitting together of several pieces.[2]

In the base of each of the crescentic cells, save only the shorter ones, a small hole, some 0·06 in. in diameter, was pierced to key in the inlay. For this purpose also, the floor of each cell had been left rough. The whole thing is a beautiful piece of work; the back even was smoothed down, though evidently not intended to be seen. Portions of the wide border seem to have been cut away, probably at a later date, for some other purpose, such as making a seal. It is otherwise difficult to account for the removal of a slice from the upper portion of the border. The edges of this cut are quite smooth.

The two parts of this piece of inlay work were found separately, though they were not very far removed from one another. Locus of DK 11404: Bl. 18, rm. 101. Level: – 6·2 ft. Locus of DK 12097: Bl. 18, rm. 94. Level: – 3·8 ft.

Plate CXLI.—No. 1 (DK 4224). Brown limestone. 1·42 ins. long by 1·15 ins. wide by 0·3 in. deep. One side fluted, the other unornamented. All the edges are strongly bevelled. Locus: Bl. 6, ho. III, rm. 17. Level: – 10·3 ft.

[1] They may, indeed, have been the raiders who were responsible for the skeletal remains found in various parts of the city.

[2] This V-shaped mark may be a variant of the U-shaped signs on some of the copper implements (Pl. CXXVI, 2, 5). If so, this object may bear the number fourteen.

No. 16 (DK 4751). White steatite; with inlaid paste, now white. 1·65 ins. long by 1·5 ins. wide by 0·31 in. thick. Only the straight edge at the right of the photograph is unbroken. This fragment is so like the pieces shown in Pl. CVI, 11, 12, that there is a strong possibility that it was once part of the same plaque, although it was found in another building. Locus: Bl. 11, ho. III, rm. 27. Level: – 8·6 ft.

No. 25 (DK 6871). White steatite. Greatest length 1·19 ins. by 0·04 in. thick. This appears to be a fragment of a scene made up of pieces of inlay similar to the scenes from Ur and Kish. Locus: Fore Lane, bet. Bls. 4 and 7. Level: – 11·5 ft.

No. 29 in Pl. CXLII (DK 9450). White steatite; apparently once glazed. 1·1×1·1 ins. by 0·13 in. thick. Edges slightly bevelled. Only one other piece of this shape has been found.[1] A small horizontal hole doubtless helped to fasten this piece to its bedding, unless it was worn as a bead or an ornament fastened to the clothing, for which it seems hardly thick or strong enough. Locus: Bl. 7, ho. VIII, rm. 16. Level: – 23·6 ft.

Bone Inlay (*Pl. CXLII, 35*).

No. 35 in Pl. CXLII (DK 7064). Bone. 1·36×0·57 ins. by 0·3 in. thick. This might be the spacer of a necklace, but the large holes of varying size, of which the middle one is 0·31 in. in diameter and the others 0·16 in., suggest some other use, and it seems reasonable to assume that it was a piece of inlay. Locus: Long Lane, bet. Bl. 10 (III) and 12. Level: – 17·4 ft.

Shell-Inlay (*Pls. CVI, 3–7, 35; CVII, 4, 5, 14, 15; CXLI, 9–15, 18–21, 23, 24, 26, 27; CXLII, 27, 30, 30a, 31, 32, 34, 36, 38, 39, 40; CXLIII, 16, 17*).

Plate CVI.—No. 3 (DK 11367). 0·67×0·6×0·1 ins. Ear-shaped. Edges bevelled. Locus: Central Street, bet. Bls. 9 and 18. Level: – 8·7 ft.

Nos. 4 and 5 (DK 10703). Greatest length 1·45 ins. by 0·15 in. thick, and greatest length 1·14 ins. by 0·13 in. thick. These two pieces of the same design were found together. Both were roughly cut and are badly weathered. Owing to the curvature of the shell, neither is quite flat. Locus: Bl. 18, rm. 67. Level: – 2·8 ft.

No. 6 (DK 10374). 1·78 ins. long by 0·47 in. wide by 0·11 in. thick. Unusual in shape and decoration. The reverse is flat and undecorated. Locus: Surface. Level: – 1·9 ft.

No. 7 (DK 11510). 1·25 ins. long by 0·6 in. wide by an average of 0·11 in. thick. One other piece of this very unusual shape was found in a previous season.[2] Locus: Lane bet. Bls. 14 and 15. Level: – 6·5 ft.

No. 35 (DK 10181). 1·45 ins. in diameter by 0·3 in. thick. Obverse rounded; reverse concave, following the natural curvature of the shell. The familiar divided circle design is somewhat roughly engraved upon it. Locus: Central Street, bet. Bls. 6A and 25. Level: – 5·3 ft.

[1] *Mohenjo-daro and the Indus Civilization*, pl. CLV, 32.

[2] *Op. cit.*, pl. CLV, 30.

Plate CVII.—No. 4 (DK 8184) (see also Pl. CXLII, 31). 0·82 in. in diameter by 0·1 in. thick. Reverse slightly hollow, owing to the curvature of the shell. Face flat and decorated with a round groove. Locus : First Street (22). Level : – 7·4 ft.

No. 5 (DK 11105) (see also Pl. CXLI, 13). Greatest length 1 in. by 0·13 in. thick.[1] Locus : Bl. 8A, rm. 42. Level : – 7·4 ft.

No. 14 (DK 11881) (see also Pl. CXLI, 10). 1·3 ins. in diameter by 0·12 in. thick. In places still bears the marks of the drill used to fret it out. Outer edge bevelled. Locus : Bl. 9, ho. X, rm. 86. Level : – 8·4 ft.

No. 15 (DK 11841) (see also Pl. CXLI, 12). Greatest length 1·63 ins. by 0·17 in. thick. Outer edge bevelled. Locus : Bl. 9, ho. XII, rm. 94. Level : – 6·3 ft.

Plate CXLI.—No. 9 (DK 10592). 1·35 ins. in diameter by 0·13 in. thick. This piece which is incomplete seems to have been begun with a drill and finished with a saw. Locus : Bl. 9, ho. I, rm. 51. Level : – 5·4 ft.

No. 11 (DK 10628). 1·02 ins. in diameter by 0·11 in. thick. Outer edge bevelled. Found in same house as No. 9. Locus : Bl. 9, ho. I, rm. 50. Level : – 5·7 ft.

No. 14 (DK 12700). 1·62 ins. long by 0·6 in. wide and 0·1 in. thick. Lozenge-shaped, with edges slightly bevelled. Locus : First Street (24). Level : – 12·1 ft.

No. 15 (DK 5372). 1·4 ins. long by 0·09 in. thick. Leaf-shaped and very like No. 4 in Pl. LXXI. Locus : Bl. 7, ho. III, rm. 46. Level : – 10·6 ft.

No. 18 (DK 4003). 0·91 in. in diameter ; 0·15 in. thick. Three of these round pieces of inlay were found together, the other two slightly smaller than the piece illustrated. In all of them, the face is smooth and the reverse rather rough. Locus : Bl. 2, ho. II, rm. 25. Level : – 10 ft.

No. 19 (DK 10503). 0·8 in. in diameter by 0·15 in. thick. A round flat piece, unornamented. Locus : Bl. 9, ho. VIII, rm. 44. Level : – 3·5 ft.

No. 20 (DK 3340). 1·2 ins. in diameter by 0·15 in. thick. The incised ring round the centre was probably filled in with a coloured paste. Edge strongly bevelled. Locus : Bl. 8, ho. I, rm. 5. Level : – 4·8 ft.

No. 21 (DK 10331) 0·62 in. in diameter by 0·1 in. thick. A simple round piece, unornamented. Locus : Bl. 6A, rm. 32. Level : – 4·2 ft.

No. 23 (DK 4721). 1·78 ins. in diameter by 0·45 in. thick. Simple round piece, rather out of shape owing to the curvature of the shell. Locus : Bl. 12, ho. I, rm. 9. Level : –7·5 ft.

No. 24 (DK 6598). Greatest length 2·53 ins. by 0·9 in. thick. A large piece of shell inlay with two edges stepped. Both sides were carefully rubbed down flat. Locus : Bl. 7, ho. I, rm. 14. Level : – 10·8 ft.

[1] Very similar pieces to this, but made of bone, have been found by Frankfort at Tell Asmar, in Mesopotamia and dated by him to c. 2,600 B. C. : *Ann. Bibl. Ind. Arch.*, 1932, pl. 1, f.

No. 26 (DK 10680). Rectangular piece, 1·3 ins. long by 0·35 in. wide by 0·15 in. thick, with bevelled edges. Must have been fitted to another piece of shell to complete a design. Locus: Bl. 9, ho. X, rm. 55. Level: –5·6 ft.

No. 27 (DK 10602). Rectangular piece, 1·4 ins. long by 0·35 in. wide by 0·11 in. thick, with bevelled edges. Locus: Bl. 9, ho. X, rm. 55. Level: –3·9 ft.

Plate CXLII.—No. 27 (DK 6987). Greatest length 0·89 in. by 0·13 in. thick. Broken fragment of a roundel with a rosette inside; when complete must have resembled a perfect example found during the earlier excavations.[1] This later found piece is, however, much finer work. Locus: Long Lane, bet. Bls. 10 and 12. Level: –23·2 ft.

No. 30 (DK 8317) (see also Pl. CXLIII, 17). 0·9×0·78 ins. by 0·09 in. thick. Similar in shape to No. 29, but simpler. Locus: Bl. 7, ho. IX, rm. 29. Level: –17·4 ft.

No. 30a (DK 7965) (see also Pl. CXLIII, 16). Unusually large piece of shell inlay, 3·12 ins. across the longest chord by 1·59 ins. wide and 0·22 in. thick. Exceptionally well made, with the divided-circle design very carefully engraved. This piece must have been cut from a very large shell, as it is of nearly equal thickness throughout. A number of similar pieces were probably fitted together to form a large circle. Locus: Bl. 7, ho. IV, rm. 72. Level: –13 ft.

No. 32 (DK 5724). 1·21 ins. in diameter by 0·19 in. thick. Face divided into three parts by groups of three parallel, incised lines, of which the outer ones were filled in with black and the middle line with red. The obverse is convex and the reverse concave, owing to the curvature of the shell. Locus: Bl. 12A, ho. I, rm. 15. Level: –12·9 ft.

No. 34 (DK 7195). 1·15 ins. long by 0·1 in. thick. Hollow, ear-shaped piece. Badly weathered. Locus: Bl. I, court III (17). Level: –16·2 ft.

No. 36 (DK 5026). Leaf-shaped piece. 1 in. long by 0·1 in. thick. Locus: Fore Lane, bet. western wing of Bl. 1, and Bl. 10. Level: – 13 ft.

No. 38 (DK 4997). 0·75 in. in diameter by 0·11 in. thick. Roughly quartered by two groups of three parallel lines, of which the outer lines are filled in with black and the middle one with red. These lines were roughly cut with a saw whose blade was 0·02 in. thick. Locus: Bl. 1, ho. IV, rm. 27. Level: –14·9 ft.

No. 39 (DK 5108). 1·55 ins. long by 0·25 in. wide by 0·11 in. thick. Probably a piece of inlay, but might be an unfinished spacer in which the holes had not been bored. Locus: Bl. 3, ho. V, rm. 10. Level: –13 ft.

No. 40 (DK 5747). 1·95 ins. long by 0·08 in. thick. One edge serrated. Locus: Bl. 1, S. W. wing (II), rm. 32. Level: –17·9 ft.

Inlay of Faience and Vitreous Paste (*Pls. CXLI, 2–4, 17; CXLII, 28*).

Plate CXLI.—No. 2 (DK 5328). Yellowish-brown paste. 1·65 ins. long by 1·16 ins. wide by 0·31 in. thick. One side decorated with incised parallel

[1] *Mohenjo-daro and the Indus Civilization*, pl. CLV, 50.

lines, other side plain. Edges bevelled. Is not quite flat. Locus: Bl. 4, rm. 14. Level: −9·2 ft.

No. 3 (DK 10785). Vitreous paste: light turquoise-blue. 1·15 ins. long by 0·2 in. thick. One face fluted; other face flat. Upper and lower edges perfect; broken at sides. Locus: Lane, bet. Bls. 9 and 9A. Level: −6 ft.

No. 4 (DK 4703). White paste. 1·1 ins. in diameter by 0·2 in. thick Obverse convex, ornamented with incised parallel lines. Reverse flat and plain. Locus: Bl. 10, ho. IV, rm. 70. Level: −5 ft.

No. 17 (DK 5294). Green faience (?). 1·1 ins. long by 0·12 in. thick.[1] A minute hole through this piece from the top of the second step on the left to the base apparently served to wire it to its bed. Locus: Bl. 2, ho. II, rm. 22. Level: −11·5 ft.

Plate CXLII.—No. 28 (DK 4014). Apple-green vitreous paste; smooth, but unpolished. 1·52 ins. in diameter by 0·1 in. thick. Beautifully made and finished. Locus: Bl. 2, ho. II, rm. 25. Level: −15·2 ft.

No. 37 (DK 9685). Pottery. 1·62 ins. in diameter by 0·22 in. thick. This disc-shaped piece was carefully cut out from a pottery sherd, apparently with the aid of a tubular drill. Too large to be a gamesman, it must have been used as a piece of inlay, or possibly as a cover for a cosmetic jar. Locus: Fore Lane, bet. Bl. 1 and Bl. 10 (I). Level: −28 ft.

Flooring- or Roof-plaster (*Pl. CVIII, 17*).

This fragment of plaster is one of several pieces found in room 34 of House III, Bl. 11, some 18·3 ft. below datum. These pieces range from 1·55 ins. to 1·9 ins. thick, and the one illustrated is some 6·5 ins. square. As is clearly seen in the photograph, this plaster was spread upon reed-matting, made with stalks averaging 0·4 in. in diameter, lashed together at intervals of 2·75 ins. The coherence of the mud was ensured by means of an admixture of glumes and husks.[2] The upper surface of this piece of floor-plaster is very even and shows signs of having been smoothed over with a wooden float.[3] This fragment and others with which it was found owe their preservation to being accidentally burnt, otherwise they would have disintegrated completely in the damp and salty soil. The method of laying straw or reed-matting[4] upon the beams and then covering it with mud to form a roof or the floor of an upper storey was practically universal in the ancient east as now;[5] other fragments of plaster bearing impressions of reed-matting were

[1] The step motif was also used in the L. H. I-II Period at Mycenae for inlay on what was probably the side of a wooden box, each of the triangular pieces of inlay having only one side notched: Wace, *Archæologia*, Vol. LXXXII, p. 84, fig. 30.

[2] Unfortunately only their impressions were left, otherwise they would have enabled us to determine the exact species of grain that was cultivated at Mohenjo-daro.

[3] I could see no signs of cow-dung having been smeared upon it, but this could have been burnt away.

[4] Palm-sticks are used in Egypt and in many places elsewhere in the East.

[5] Mud-plaster with the impressions of reed-matting has lately been found at Khafaje in Mesopotamia by Dr. Preusser: *Tell Asmar and Khafaje*, Oriental Institute, Univ. of Chicago, p. 91. See also C. J. Gadd, *History and Monuments of Ur*, p. 58.

found in the western court of Bl. 1 where they appear to have been cleared out of room 32 of the south-west wing, which had obviously been burnt out by a conflagration.

Textiles.

We now have a fair amount of information concerning the textiles used at Mohenjo-daro. Appended to this chapter are summaries of several reports by Mr. Amarnath Gulati, M.Sc., of the Cotton Technological Laboratory, Bombay, on the samples of woven material that have been found adhering to various copper objects and that have been preserved by the metallic salts created by the contact of the metal with alkalis in the damp soil of the site.[1] It will be remembered that the sample of cotton fabric found adhering to a silver vase, on which a report was published in the first book on the site,[2] was preserved in this same manner.

Most of the textiles of which traces have been found have proved to be cotton. But Mr. Gulati has also found bast fibres adhering to three copper beads as well as twisted round the fish-hook seen in Pl. CXXXII, 6. In my description of this latter article (Chap. XIII, p. 472), I have already suggested that the careless way in which the cord was wound round this hook suggests it to have been the property of a small boy, who perhaps also had to use " bast " instead of cotton for his twine for reasons of economy.

Considering that flax is so largely grown in India at the present day, it might have been expected that it was also grown by the ancient people of the Indus Valley,[3] but of this there is at present no indication. It was well known in Elam in very ancient times,[4] and is the only fabric that has yet been identified there. In Egypt, as is well known, it was the only fibre used, save for a small quantity of *ramie*. Flax could equally well have been preserved by copper or silver salts as cotton, and we can only conclude that it was either not used at all or that we have not yet been fortunate enough to come across any preserved examples. Flax has a great advantage over cotton in being stronger, but is very much more difficult to prepare for spinning.

Summary of Reports on Various Fabrics by Mr. Amarnath Gulati.

Cotton. Fabric adhering to broken knife (DK 83761), not illustrated.—There were four bits of string adhering to one side of this knife, and on the other side seventeen grooves in the patina possibly represent the positions of string that has

[1] Copper salts are frequently used to-day to render canvas and other materials rot-proof.

[2] *Mohenjo-daro and the Indus Civilization*, pp. 585-6. See also Turner and Gulati in *Bulletin No. 17, Technological Series, No. 12*, Indian Central Cotton Committee, Bombay.

[3] According to de Candolle, flax was introduced into India by the Aryans : *Encycl. Brit.*, (14th Edit.), vol. 9, 363.

[4] For actual illustrations, see *Mém. Dél. en Perse*, t. XIII, pl. XXIII, figs. 9 and 10.

disappeared. Two of the pieces of string were removed for examination, but unfortunately in the process each length broke into two. The measurements and weight of the four pieces of string thus obtained were as follows :—

	Length.	Breadth.	Weight.
1	1·15 cm.	1·0 mm.	3·6 mg.
2	0·85 „	0·9 „	2·0 „
3	0·44 „	0·9 „	0·75 „
4	0·39 „	0·8 „	0·65 „
Total	2·83 cm.	3·6 mm.	7·0 mg.

The first three pieces when placed in water to facilitate teasing were reduced to powder ; in the fourth, however, four strands were recognisable.

The counts, as worked out from the weight, 7 milligrams, of 2·85 cm. of yarn were *2s* ; but as the string appeared to be four-fold, the count value of each strand would correspondingly be *8s*.

Microscopical examination of the fibres revealed the convoluted structure characteristic of cotton. The ribbon-width commonly varied between 15 and 20. The cell walls were, however, unusually thickened and the lumen rather narrow, so that each was roughly one-third of the total ribbon-width. The cylindrical contour and shining appearance of those pieces of fibre devoid of convolutions suggest some such change as would follow mercerisation. Time had obviously produced chemical changes in the composition of the fibre.

Fabric on Copper Razor (*DK 11985*) (*Pls. CXVIII, 7 ; CXXV, 41*).—The examination of this specimen comprised :—

(*a*). Visual inspection.

(*b*) Examination of the fabric with magnifier and a Micro-linen counter.

(*c*) Microscopic examination of the fibres.

(*a*) *Visual inspection.*—This blade[1] appears to have been wrapped up in a coarse fabric which could be distinguished in a few places only and appeared as an impression of fabric elsewhere or was hidden under a coating of clay. The weave of this fabric was plain, *i.e.*, with an almost equal number of picks and ends per unit length.

(*b*) *Examination with magnifier and a micro-linen counter.*—A small rectangle of known dimensions made of fine copper wire was placed wherever the fabric showed well, and the picks and ends embraced by it were counted with a magnifying-glass. They were also counted with the help of a micro-linen tester. The mean of these observations gives 44 picks and 43 ends per inch. The diameter of the yarn varies between 1/50th. and 1/80th. of an inch. It has already been shown[2] that with ordinary twists and counts lying between 20's and 40's, the diameter of

[1] This razor was accidentally broken into two pieces (E. M.).

[2] The Influence of Yarn-Twist on the Diameters of Cotton Yarns and on the proportion of Fibre-Slippage and Fibre-Fracture in Yarn Breakage, by A. N. Gulati, M.Sc., and A. J. Turner, M.A., D.Sc. (*Tech. Bull. Series B No. 9*, Indian Central Cotton Committee, Bombay).

a yarn (*d*) and its count (*c*) are connected by the formula d = 1/c. Applying this formula, we find that the counts of the yarns used in the manufacture of the fabric under examination lie between 13's and 17's. Taking 15's as the average value, the weight of the fabric would be 4 ozs. per square yard.

(*c*) *Microscopic Examination.*—With some difficulty, a few very small pieces of the yarn were scraped off and weighed. With the lengths measured with a travelling microscope, the average counts worked out to be 18's. Considering the small lengths of the yarn handled and their extreme fragility (which often caused them to fall to powder in spite of the greatest care), this value is really not very different from the one deduced from the diameter readings.

Of a number of fibres teased off with a fine needle and examined under a high-power microscope, the majority appeared as transparent crystalline needles, but a single fibre was ultimately found which was definitely convoluted. None of the other fibres examined exhibited the characteristics of fibres of flax, hemp, etc. It is therefore to be concluded that the material used in the manufacture of this fabric was cotton.

Basts. Cord on a Copper Rod (*DK 5844*), *not illustrated.*—The thickness of a string wound round the middle of this rod, as measured at six different places, was:—

0·399 mm.; 0·266 mm.; 0·247 mm.; 0·361 mm.; 0·304 mm.; and 0·266 mm. It appeared to be composed of two or more strands twisted together, the greatest thickness of these strands at four places being 0·142; 0·152; 0·133; and 0·19 mm.

Microscopic examination revealed long crystalline, needle-like fibres twisted to form a string. This material was highly fragile and the slightest pressure powdered it; but traces of vegetable fibre of the nature of bast were seen in this powdered material. These fibres showed structures which might be called crossbands. The ribbon-width of the fibres as measured at ten places varied between 8·6 and 17·2 μ.. Here and there collections of the lignified cells one sees in vegetable barks were observed. They were greenish-yellow in colour.

Subjected to Herzberg's iodine test, this vegetable matter reacted like wood, jute and straw.

Treatment with *NaOH* (11 per cent.) also failed to bring out the micellar arrangement of cellulose commonly seen in cotton. Nor were any convolutions seen in the untreated material. Most of the vegetable matter could, in fact, be identified as straw or bits of jute-like fibre. But the absence of convolutions and the ribbon-width measurements are insufficient to justify the definite identification of this material as jute, as the ribbon-widths of flax and hemp are nearly the same.

Apart from this, it is possible that the string originally wound round the rod had become fossilised into the needle-like crystals which in the mass retained the original shape of the string, and that the vegetable matter with it was an extraneous deposit on it.[1]

[1] I do not think this at all probable (E. M.).

Thread on Fishing-hook (DK 9276) (Pl. CXXXII, 6).—Although a piece of twine seems to have been wound round this hook, it was impossible to pick out complete fibres from the patina for microscopical examination on account of their very fragile condition. None the less, some very minute fragments were similar in structure to bast fibres.

Fabric on Three Copper Beads (DK 9275), not illustrated.—These fragments of woven fabrics which were clearly visible measured :—(1) 8×8 mm. ; (2) 11×6 mm. ; and (3) 6·5×6·5 mm. There were seven threads in either direction in the first specimen, eleven and six in the second, and nine either way in the third. The texture was, then, not the same in the three pieces. There was apparently no difference in the thickness of the yarn in either direction. The counts[1] determined from the weight and length of some pieces removed from the beads were the same, roughly 8's, for both directions.

Microscopical examination revealed the fact that the structure of the component fibres in the teased-off bits of yarns was similar to that of bast fibres, as characterised by the compound nature of the fibres and the short length of the ultimate, more or less spindle-shaped fibre.

Copper and Bronze.

In a short note in *Nature*,[2] Mr. H. C. H. Carpenter of the Royal School of Mines discusses the nature and mode of manufacture of a copper axe, dated to the Middle Prehistoric Period,[3] that was found by Mr. Guy Brunton at El-Matmar in Middle Egypt. This axe is composed of 97·35 per cent. of copper, the other percentages being various elements which are thought to have been derived from the ores from which the copper was smelted. From the micro-structure of the metal Mr. Carpenter concludes that this axe was cast in the first place (like those of Mohenjo-daro), and then either cold-hammered and annealed,[4] or hammered when hot. This preliminary operation he considers to have been merely intended to shape the axe, which was finally hardened by hammering when cold, and that most severely near its cutting edge. From the Brinell hardness measurements made, this axe was 85 close to the cutting edge, decreasing to 63 towards the middle of the blade. As it is possible that ancient axes do not retain their original hardness, it may be, as suggested by Mr. Carpenter, that this axe was once even harder. Nevertheless, the hardness quoted, 85, is much above that of mild steel and shows that these ancient copper axes could stand very hard wear. Mr. Carpenter's suggestion that the Egyptian axe was shaped by a preliminary hammering, either hot or cold, presumes, of course, that the cast metal was in a ruder form than the finished blade.[5] The axes of Mohenjo-daro as will be seen from the rejected castings in Pl. CXXXII, Nos. 36 and 40, were cast very much in the same shape as the finished specimens that we have found, even to the curved cutting edge ;

[1] Determined according to the standard for cotton yarns.

[2] Oct. 22, 1932, pp. 625-6.

[3] A much earlier period than the upper strata of Mohenjo-daro.

[4] Major H. Garland has expressed the opinion that annealing was never practised by the ancient Egyptians : Garland and Bannister, *Ancient Egyptian Metallurgy*, p. 68.

[5] I do not remember hearing of unfinished castings of very early date from Egypt, but one may presume that these were as close as possible to the shape of the finished object.

they would, therefore, have required but little hammering to shape them, but probably a great deal for hardening. I have thought it well to include these remarks because it is probable that the early Egyptian axes and those from Mohenjo-daro were manufactured in an exactly similar manner, despite the fact that the latter are considerably later in date.

Ring-stones (*Pl. CXLIV*).

In the first book on Mohenjo-daro, I briefly described two large ring-stones out of a large collection of twenty-seven in all, of which four were too broken to be measured. These ring-stones were found by Rai Bahadur Daya Ram Sahni in room 49 of House V, Block 2, of the HR Area between the levels 3 ft. and 6 ft. below the surface of the ground.[1] As they had to be put into soak immediately and remained there for over a year to remove the salt that was in them, I had little opportunity then to examine more than one or two of them properly. Subsequent more detailed investigation, however, seems to prove that, as already suggested, they had an architectural use.

These stone rings (Pl. CXLIV) were all cut from hard cherty limestone, cream or grey in colour, and are on the whole well finished, though their surfaces were left unpolished. Judging from their regularity, they were cut on a lathe after being roughly dressed into shape. The building from which they were unearthed must have been very damp from time to time as many of the rings are very badly weathered.

The base and top of each stone are flattened ; and in those of the larger size (some 5 ft. in circumference), these flattened areas extend an average of 2·5 ins. from the edge of the central hole.

The central holes are all well cut with straight walls and they show no wear that could have been caused by the rings revolving on an axle.[2] How these holes were cut is uncertain ; possibly they were first roughly shaped with a pick and then a stone grinder was used, perhaps with sand, to smooth the walls. There are no indications that the boring was done from both ends, as was usual in making mace-heads, for instance, from the harder stones.

On certain of these ring-stones there are variable numbers of little circular spots or pittings (Pl. CXLIV, 2, 4), which average 0·15 in. in diameter by 0·2 in. deep. The rounded bases of these pittings suggest that they were ground out with the help of an abrasive. Whatever their number, these spots are placed in a line close to, and very generally at a tangent to the edge of the hole through the stone,[3] in which position they would be hidden from view on the setting up of the rings on a pole or other support, a circumstance which obviously suggests that they were intended for the guidance of the mason.

[1] *Mohenjo-daro and the Indus Civilization*, pp. 61-3, 191, 473-5 ; pls. CXXX, 7, 9, 30 ; CLVII, 59.

[2] It has been suggested by some that these large ring-stones were used for grinding. The stone of which they are made is, however, quite unsuitable for this purpose. Moreover, there are no signs of wear on either the outer or inner surfaces of the rings.

[3] Sometimes this line is slightly curved.

In the list below the dimensions of these stone rings are given in the order of the lengths of their diameters. The question-marks indicate that certain details were obscured by more or less damage to the stone.

No.	Field No.	Spots.	Dowel-holes.	Mortise slots.	Height.	Diameter.	Diameter of central hole.
1	HR 5942 . .	0	0	0	9·8 ins.	16·5 ins.	4·8 ins.
2	,, 5925 . .	?	2	2	9·8 ,,	16·7 ,,	4·6 ,,
3	,, 2810 (*f*) .	?	?	?	?	16·75 ,,	4·5 ,,
4	,, 5928 . .	0	4	2	9·9 ,,	16·75 ,,	4·8 ,,
5	,, 2810 (*c*) .	?	2	0	10·0 ,,	16·9 ,,	4·9 ,,
6	,, 5924 . .	9	2	0	10·2 ,,	17·0 ,,	5·9 ,,
7	,, 5937 . .	6	2	0	10·25 ,,	17·1 ,,	5·7 ,,
8	,, 5930 . .	8	4	0	10·3 ,,	17·25 ,,	5·7 ,,
9	,, 5932 . .	?	?	?	10·2 ,,	17·5 ,,	5·6 ,,
10	,, 5931 . .	6	0	0	10·6 ,,	17·75 ,,	6·7 ,,
11	,, 5933 . .	?	?	?	?	17·85 ,,	6·7 ,,
12	,, 5929 . .	5	4	0	10·75 ,,	18·1 ,,	6·6 ,,
13	,, 5926 . .	5	2	0	10·8 ,,	18·15 ,,	6·6 ,,
14	,, 2810 (*b*) .	?	2	0	10·2 ,,	18·25 ,,	6·9 ,,
15	,, 5927 . .	7	0	0	10·6 ,,	18·5 ,,	6·6 ,,
16	,, 2810 (*a*) .	1	0	0	10·9 ,,	18·5 ,,	6·1 ,,
17	,, 2810 (*d*) .	2	0	0	11·0 ,,	18·6 ,,	7·3 ,,
18	,, 5938 .	?	2	0	?	18·7 ,,	8·1 ,,
19	,, 2810 (*e*) .	3	2	0	11·1 ,,	18·9 ,,	8·1 ,,
20	,, 5923 . .	?	0	0	11·2 ,,	18·95 ,,	8·0 ,,
21	,, 5936 . .	2	?	?	11·3 ,,	19·0 ,,	8·0 ,,
22	,, 8910 (*g*) .	?	?	?	?	19·1 ,,	8·4 ,,
23	,, 5940 . .	?	2	2	11·2 ,,	19·15 ,,	8·2 ,,

Nos. HR 5939, HR 5941, and HR 2810 (h and i) were too much damaged to be measured.

In this list it is seen that the height of the ring and the diameter of the central hole increase more or less progressively with the diameter of the ring. It is possible that the axis on which I imagine these stone rings were threaded was less in diameter than the holes in the rings, and the space between axis and rings may have been filled in with plaster. If, as I think, however, these rings were once set on a tapering pole, the diameters of the central holes in the stones would necessarily have had to be graduated. There are, unfortunately, four stones whose dimensions are uncertain owing to breakage.

There is no direct sequence of numbers on these rings. Two have two spots (Nos. 17 and 21), two have five (Nos. 12 and 13), and two six spots (Nos. 7 and 10); and no three stones bear the same number. It is more than possible that the numbers have disappeared from those of the stones which are badly weathered, and that they were all once marked in regular series. It will be noticed that the dimensions of Nos. 7 and 10, both of which are marked six, differ only by a trifle over 0·6 in.

The fact that there are three pairs among these twenty-seven (possibly originally twenty-eight) stones that are marked alike suggests that there were two sets. It will be objected that the numbering of the stones is not in proper sequence; for instance, No. 16 should come at the bottom. But in general, the larger the stone—and the largest stones would be laid first—the lower the number; and it is quite possible that No. 16 once bore a higher number and that through weathering the other pittings have disappeared. Or, possibly, the stone-worker marked each stone as he made it, irrespective of its size, and then gave the mason a list of the numbers, which were not necessarily in sequence, for the purpose of setting the rings up in proper order.

Quite apart, however, from the question of these numbers, it is safe, I think, to assume that we have in this group of stones two graduated columns of some fourteen segments each, which conceivably supported the portico of a house or shrine.[1] [2] No columns of this kind have yet been found at Mohenjo-daro; but there is no reason, I think, to assume in consequence that stone columns were never erected there. A very considerable part of Mohenjo-daro remains to be excavated and to my mind it is by no means impossible that stone was actually used for architectural purposes rather more than we imagine. In an alluvial country such as that around Mohenjo-daro, stone would have been greatly valued and it is permissible to assume that after the final desertion of the city all stonework that was accessible was removed elsewhere to serve the same or other purposes. The fact that these ring-stones were gathered together, though no longer set up in column form, suggests that it was intended to remove them. They appear to have been deposited haphazard in the chamber in which they were found, and débris lay between them in some cases. That they had suffered badly before collection is quite evident since not all of them were perfect. The fact that with these stone rings were found two stone capitals (perhaps four) does certainly indicate that the former had some architectural use,[3] though I do not think that these particular capitals ever surmounted any but wooden columns.

The dowel holes cut in some of the stones are very interesting. On three of the rings (Nos. 4, 8 and 12), there were two holes in the top and two in the base, averaging 0·5 in. in diameter by 1 in. deep and set at equal distances from the edge of the central hole. That they were cut with a tubular drill is shown by the core

[1] It can be roughly estimated that these columns would have been over 11 ft. high. That the segments alternated with rings of some other colour is unlikely, owing to the presence of the three consecutive numbers 6, 7 and 8.

[2] They may, of course, have been cult objects.

[3] *Mohenjo-daro and the Indus Civilization*, p. 264, pl. CXXX, 21–3.

of one of the holes being left in place, which suggests also that this particular stone was unfinished (Pl. CXLIV, 5).

The mortise-slots in three of the rings are semi-circular in shape and average 0·95 in. long by 0·86 in. wide and 0·85 in. deep. On two of the stones they are at right angles to the dowel-holes, but on a third specimen (No. 2) this is not the case. It seems that they were intended to engage a flat tenon, which appears to have been passed through the central support of the column to prevent any sideways twist of the ring.

Selenite and Gypsum.

Owing to the presence of a gypsum-like substance between many of the bricks at Mohenjo-daro, it was at first thought this substance was used extensively as a mortar. True gypsum exists independently, however, as shown by Dr. H. J. Plenderleith of the British Museum, who has examined several deposits and reports as follows :—

"*1st Deposit.*—Microscopic examination has settled the question beyond doubt. A section of the friable matter between two bricks shows a laminated structure. There are three layers altogether, the outside layers being of mud and the centre one of very characteristic selenitic crystals set at right angles to the bricks.

The sulphate of calcium in some cases is all in the form of selenite ; a mortar composed of gypsum could never get into this condition and all the evidence goes to show that mud was indeed the only binding material. It may be taken as certain that the crystals of selenite have become aggregated in this layer at a later date.

2nd Deposit.—Nodules of gypsum mortar which had been used for pointing the bricks :—

Moisture	3·60 %
Water (combined)	0·01 %
Silica	23·05 %
Iron oxide and Alumina	3·43 %
Calcium sulphate	55·67 %
Carbonates	Nil
Magnesia and alkalies	not estimated."

In other places at Mohenjo-daro gypsum was sometimes used as a mortar, but plain mud was certainly the favourite material.

Lime Mortar.

That lime was sometimes burnt and used as a mortar for fine brickwork is proved from the analysis of a cement found between the bricks of an exceptionally well constructed drain in First Street (Pls. XXIX, c ; XLV, a). I am indebted to Khan Bahadur Muhd. Sana Ullah for the following report on this substance :—

Calcium carbonate	39·96 %
Magnesium carbonate	8·82 %
Gypsum	traces.
Water	3·58 %
Sand, clay, etc.	47·64 %

The Khan Bahadur observes that " Magnesium carbonate frequently occurs in limestones, and was evidently present in the original limestone which was burnt for this purpose ".

Analyses of Silver.

Dr. M. A. Hamid, Assistant Archæological Chemist, reports as follows on two fragments of silver :—

The first, No. DK 5774 (Pl. CXXXII, 22), at the level of — 17·8 ft. in house I, Bl. 10, contains :—

Silver	94·52 %
Lead	0·42 %
Copper	3·68 %
Insolubles (silver chloride, etc.)	0·85 %
Total	99·47 %

The presence of copper in this sample of silver Dr. Hamid regards as probably due to adulteration.

One of a number of pieces of scrap silver (DK 11337, o) (Pl. CXXXV, 14–16) found in a copper vase together with a number of other vessels and tools (Pls. CXVI ; CXVII, 1–4) has the following composition :—

Silver (present as metal)	14·20 %
Silver (present as chloride)	56·49 %
Chlorine (present as silver chloride)	18·51 %
Lead	1·04 %
Copper	2·28 %
Sand, etc..	7·48 %
Total	100·00 %

The percentage composition of the original alloy would, therefore, be :—

Silver	95·52 %
Lead	1·40 %
Copper	3·08 %
Total	100·00 %

From the chemical analysis of the last specimen, Khan Bahadur Muhd. Sana Ullah is of the opinion that the silver was extracted from galena which was associated with copper ore.

Analyses of Lead.

A specimen of lead (DK 6314) was found by Dr. Hamid to contain no silver.

Copper ore.

Samples of copper ore and the piece of lead (DK 5316) mentioned in Chap. IV (p. 54), as having been found in a brick-lined pit in Block 1, house VI, rooms 51, 52, at the level – 16·8 ft. have also been examined by Professor C. H. Desch, F.R.S., who writes as follows :—[1]

"The ore, a red oxide of copper with very little foreign material, gave :—

Copper	76·15 %
Sulphur	1·12 %
Arsenic	0·37 %
Nickel	0·23 %
Lead	traces.
Insoluble matter	4·80 %"

"The sulphur was present as copper sulphide. The insoluble matter consisted of silica and iron oxide. The ore is thus a copper oxide, no doubt a surface ore at the outcrop of pyrites, as it contains some sulphide. This would be easily smelted, and is particularly interesting as containing both the key elements, nickel and arsenic, found in most of the earliest coppers that we have examined. Tin and other metals were absent."

"The lead is in the metallic form, coated with a thin layer of lead sulphate which was removed before analysis. The composition proved to be :—

Lead	99·70 %
Copper	0·15 %
Silver	traces."

"This is a very pure specimen, and must have been smelted from a pure ore. It cannot have been obtained accidentally."

[1] For other examinations of metal objects by Professor Desch, see Chapter XIII. The ore, of course, was found at the bottom of the pit.

Chapter XVII.

SYSTEM OF WEIGHTS.

BY

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In Chapter XXIX of "Mohenjo-daro and the Indus Civilization", Vol. II, p. 589, the system of weights revealed by 157 specimens found at Mohenjo-daro and Harappā before 1927 was discussed. A further series of 220 weights found subsequently are now submitted to analysis.[1]

These weights have been analysed by the same method as then adopted and the great majority of them are found to fall into the classes shown in Table III, p. 591 in the earlier work, but with an upward extension of the system. The results have then been combined with those there given and at the same time the opportunity has been taken to incorporate some weights described by Dr. E. Mackay in Chapter XXIV of that book, pp. 461-464, Vol. II, which had not then been brought to my observation.

The method adopted was as follows: inspection shows that the weights with a few exceptions fall into a series of groups, the mean weights of which bear simple ratios to one another. Giving the smallest the arbitrary value of unity, the others are in simple ratios, 2, 4, 8, etc. The mean weight of each group is divided by this ratio and multiplied by the number of specimens. The products for all the groups are added together and divided by the total number of specimens. This gives a mean value of the group of smallest weight in which every specimen is allowed equal importance. The mean values for all the other groups are then obtained by multiplying this mean value by the ratios already found. In this way we arrive at the calculated values shown in column (8) in Table I. The list of weights include specimens in varying conditions of preservation. In making the calculations, all those marked as badly chipped have been omitted, although Dr. Mackay states that in no case can the error be more than five per cent. Further, in the case of specimens weighing less than 10 gms., only those marked as slightly chipped have been included with the perfect specimens.

TABLE I.—Weights given in list.

(1) Designation.	(2) No. of Spec.	(3) Mean weight observed.	(4) Mean Dev.	(5) Limits. Lower.	(6) Limits. Upper.	(7) Ratio.	(8) Calc. value.	(9) Diff. bet. Cols. (3) & (8).
A	4	·872 gm.	·031	·813	·928	1	·8565	+·016
B	7	1·780	·067	1·684	1·891	2	1·713	+·067
D	19	3·449	·086	3·313	3·780	4	3·426	+·023
E	19	6·841	·129	6·305	7·310	8	6·852	–·011
F	50	13·662	·197	13·079	14·290	16	13·704	–·042
G	55	27·425	·411	26·312	29·225	32	27·408	+·017
H	16	54·416	·370	53·627	55·900	64	54·816	–·400
J	4	136·127	·348	135·50	136·75	160	137·04	–·913
L	2	269·72	5·219	264·50	274·94	320	274·08	–4·36
N	2	1438·76	7·09	1431·67	1445·85	1600	1370·4	+68·4
V	2	2656·0	79·7	2576·3	2735·8	3200	2740·8	–84·8
Y	1	11467·6	..	..	..	12800	10963·2	+504·4

[1] The list of weights is given on pp. 607-612. Also Table X, pp. 676-678.

The unit value ·8565 gm. is almost identical with the value ·857 gm. previously found.

These results were combined with those considered in Chapter XXIX of Sir John Marshall's book and at the same time the following weights given on pp. 461-464, Chapter XXIV, were incorporated.

TABLE II.

Field No.	Type.	Weight.	Material.	Level.
VS 1821	B	5556 gm.	Limestone	– 1′
DK 3079	D	10262	Limestone	– 1′ 9″
VS 1899	D	6903	Slate	– 6′

Of the other weights given in Chapter XXIV, I may say that VS 1173 weighing 2792 gms., being marked as unfinished, has been omitted. It appears to be a specimen of class V, C 2974 weighing 6·7 gm. is a sample of class E, DK 2255 weighing 27·2 gm. of class G, HR 1115 weighing 14·019 gm. of class F, DK 7056 weighing 26·5 gm. of class G, VS 2509 weighing 33·553 gm. made of black stone and of barrel shape is equal to 4 shekels, whilst DK 3131 weighing 15·264 gm. also made of black stone and of conical shape may possibly be 2 shekels.

In Table III the result of combining all the observations is given.

TABLE III.—Combined results.

(1) Designation.	(2) No. of Spec.	(3) Mean weight observed.	(4) Mean Dev.	(5) Limits. Lower.	(6) Limits. Upper.	(7) Ratio.	(8) Calc. value.	(9) Diff. bet. Cols. (3) & (8).
A	5	·871 gm.	·026	·813	·928	1	·857	+·014
B	13	1·770	·075	1·684	1·891	2	1·714	+·056
C	2	2·285	·045	2·240	2·330	8/3	2·285	·00
D	31	3·434	·072	3·240	3·780	4	3·428	+·006
E	45	6·829	·107	6·305	7·310	8	6·856	–·027
F	91	13·731	·206	13·079	14·940	16	13·712	+·019
G	94	27·405	·368	26·312	29·225	32	27·424	–·019
H	23	54·359	·329	53·627	55·900	64	54·848	–·489
J	11	136·02	·785	134·59	137·81	160	137·12	–1·10
K	1	174·50	..	..	..	200	171·40	+3·10
L	4	271·33	3·73	264·5	275·2	320	274·24	–2·91
M	1	546·70	..	..	..	640	548·48	–1·78
N	3	1417·5	26·4	1375	1446	1600	1371·2	+46·3
V	3	2701·4	83·4	2576	2792	3200	2742·4	–41·0
W	1	5556	..	..	..	6400	5485	+71
X	1	6903	..	..	..	8000	6856	+47
Y	2	10865	602	10262	11467	12800	10970	–105

Unit weight is ·8570 gm. The weight of Group F 13·712 gms., equals 211·6 grains troy.

The limits of the various groups were determined by there being a continuous series of specimens with small intervals between the values of the weights. Considering the date, the weights are remarkably accurate, the percentage ratio of the mean deviation of the mean value of the weight being as follows :—

TABLE IV.—Ratio of Mean Deviation to Weight.

Designation.	No. of Specimens.	Percentage Ratio of Mean Deviation to Weight.	Designation.	No. of Specimens.	Percentage Ratio of Mean Deviation to Weight.
A	5	2·98	H	23	·61
B	13	4·24	J	11	·58
C	2	1·97	L	4	1·36
D	31	2·09	N	3	1·87
E	45	1·57	V	3	3·08
F	91	1·50	Y	2	5·54
G	94	1·34	..	.	..

This ratio is much lower than is found in other countries at about the same period ; it appears to point to a stricter regulation of commerce. Table I includes 181 out of the 220 specimens in the list. Of the remainder, 14 actually have weights within the limits considered, but, being badly chipped, were omitted, leaving 25 to be accounted for. Of these, 8 marked as badly chipped have weights just below one or other of the classes. Evidently if they had been perfect specimens they would come within the limits. A list of the 17 remaining to be considered follows. (Table V).

In column (7) of Table V are given possible attributions.

TABLE V.—ABERRANT WEIGHTS.

1 Field No.	2 Condition.[1]	3 Type.	4 Weight.	5 Level.	6 Material.	7 Possible Attribution.
DK 12774	p.	A	·550	−10·1	Chert	P/2 or C/4.
DK 10790	ch.	A	7·900	−3·3	Do.	Shekel.
DK 6346	ch.	A	8·850	−12·5	Agate	Shekel or 4 C.
DK 3746	p.	A	15·937	−7·3	Chert	2 Shekels.
DK 3542	p.	A	16·640	−6·2	Do.	Do.
DK 10694	ch.	A	17·183	−0	Do.	Do.
DK 5679	p.	C	17·970	−12·4	Grey Stone	8 C.
DK 10862	ch.	A	20·370	−5·8	Chert	2½ Shekels.
DK 5503	p.	A.	25·354	−18·3	Black Stone	G.
DK 6693	bc.	A	30·813	−13·5	Limestone	4 Shekels.
DK 6778	ch.	A	31·964	−14·0	Steatite	Do.
DK 11232E	bc.	E	40·402	−5·7	Black Stone	5 Shekels.
DK 101·85	bc.	A	56·872	−3·2	Chert	H.
DK 5307	p.	E	96·476	−13·7	Black Stone	2 U.
DK 11417	ch.	A	123·864	−5·5	Green Stone	Quarter Mina.
DK 11232D	sc.	E	151·424	−5·7	Black Stone	3 U.[2]
DK 5581	p.	B	185·5	−13·5	Do.	Mina/3.

Three of the weights are in simple ratios to a series of 7 weights previously found to which on account of the simplicity of their ratios with one another, provisional designations : P, Q, R, S, U, were given. These formed a series 1, 2, 3, 4, 24, 48, with a unit weight equal to ·98 gm. The present observations, however, merely add three more classes to the series without any addition to these classes themselves. The existence of a separate system is therefore not confirmed.

In fact, this series might very well be correlated with the Babylonian system, except that weights in the neighbourhood of classes T and U are not found. If, however, we accept such an attribution, these weights, together with those shown in Table V would give a total of about 22 coincidences out of 377 specimens with the Babylonian system. As the coincidences lie scattered over the whole system, and, moreover, include weights rare in Mesopotamia itself, and as the weights are quite different in shape, the coincidences are most probably accidental and may be disregarded. We may conclude that these exceptional weights are simply bad or fraudulent. Group F with a mean weight of 13·731 approximates to the Egyptian *Beqa* which has a mean weight of 13·61. This, the earliest of Egyptian weights, is found even in early Amratian graves, where it is in the form of short cylinders with domed ends. In Gerzian times it takes the form of a hemisphere with convex base, neither resembling the characteristic Indus form. There may be some significance in the coincidence in view of the *beqa* being the earliest Egyptian weight, but the difference of shape makes this doubtful.

In shape the great majority (203 out of 220) are cubical (type A). 8 are spheres with plane bases and tops (type B), 2 are cylindrical with plane ends

[1] Condition : p. perfect, sc. slightly chipped, ch. chipped, bc. badly chipped.

[2] Col. N. T. Belaiew, C.B., identifies this with 5 *Su*, the *Su* being a Susian weight = 30·71 gm.

(type C), 1 is conical (type D), and 6 are of an elongated barrel shape (type E) with plane ends. This is different from the Mesopotamian barrel shape which nearly always has rounded ends.

In material the great majority are of chert, the distribution of the 220 specimens being as follows: Chert 162, Alabaster or limestone 15, Black and white stone 11, Agate 10, Steatite 7, Black stone (Quartzite) 8, Slate 2, and one each of Grey stone, hard Green stone, Paste, Jasper, whilst the material of one is not specified. It is interesting to note that all the weights which are not cubical are not made of chert.

The weights not made of chert are on the whole not so accurate as those that are. We find that the mean deviation of such weights for a given group is always and in some cases considerably, larger than the mean deviation of the chert weights of the same group.

TABLE VI.—VARIABILITY OF CHERT AND OTHER WEIGHTS COMPARED.

(1) Group.	(2) No. of Specimens. Chert.	(3) No. of Specimens. Others.	(4) Mean Deviation. Chert.	(5) Mean Deviation. Others.
D	13	6	·043	·104
E	14	6	·121	·154
F	40	10	·187	·224
G	46	9	·389	·472
H	12	4	·271	·711

All the specimens of Groups L, N, V, and Y are of limestone and in these cases the mean deviations as well as the divergences from the calculated values are relatively large.

It may be that there was a manufactory of chert weights at Mohenjo-daro where the products were particularly well made and most popular, probably under royal patronage. The weights of other materials were very likely made elsewhere and less skilfully.

The possibility of two slightly differing units being present was tested by taking each weight, dividing by the ratio of its group and multiplying by 16. This gives the value of Group F in terms of this weight. The calculation was confined to Groups B to J (omitting C), as the number of specimens in the other groups is too small to have an appreciable effect on the result. Arranging the values of Group F so found in order of magnitude, we get a series between the limits of 13 and 15 gms. with only 5 exceptions. Take the number of values within each successive decigram to form a class. We find that the class between 13·6 and 13·7 gm. decidedly preponderates, having 79 cases out of 276 values of the group. This is what Prof. Karl Pearson calls the *mode* of the group (the *mean* value is 13·712 gm.). The evidence for a secondary maximum slightly above 13·9 gm. is so small that for most practical purposes it may be neglected.

An analysis was made to discover if there was any indication of a change of value in the weights during the period of occupation of the site. Dr. Mackay

states that the average level of door-sills and pavements below datum level is 9′ 9″ for the lowest phase of the last period whilst the average for the uppermost phase of the Intermediate Period is 13′ below datum. As a rough method of separating the two periods, I have divided the weights according as they were found higher than, or lower than, 11′ below the surface. This has the advantage also that the numbers for the more numerous groups are not too disparate.

Table VII shows for each group the mean values for the two divisions as well as the upper and lower limits.

TABLE VII.—Differences between later and earlier weights, *i.e.*: Those found respectively higher than, or lower than, a plane 11′ below the surface.

(1) Group.	(2) No. of Specimens. Higher.	(3) No. of Specimens. Lower.	(4) Mean Weight. Higher.	(5) Mean Weight. Lower.	(6) Lower Limit. Higher.	(7) Lower Limit. Lower.	(8) Upper Limit. Higher.	(9) Upper Limit. Lower.	(10) Diff. bet. cols. (4) & (5).
D	13	6	3·438	3·411	3·313	3·329	3·556	3·780	+·027
E	14	5	6·780	6·890	6·305	6·769	7·310	7·296	−·110
F	31	19	13·666	13·655	13·113	13·079	14·188	14·290	+·011
G	33	22	27·486	27·332	26·312	26·480	29·225	28·437	+·154
H	9	7	54·654	54·255	53·820	53·627	55·900	54·653	+·399

A comparison of columns (4) and (5) shows that except for Group E the later weights have an average value slightly greater than have the earlier. Column (10) shows how small the differences are, less than the mean deviation; further, the weights for each division range between almost the same limits, as is shown in columns (6) to (9). The differences, therefore, have probably no significance, nor do the figures for weights found more than 20′ below the surface furnish any other indication.

Conclusion. The weights found at Mohenjo-daro form a series in the following ratios: 1, 2, 8/3, 4, 8, 16, 32, 64, 160, 200, 320, 640, 1600, 3200, 6400, 8000, 128000. The unit weight has the calculated value of ·8570 gms., the largest weight, 10970 gms. Groups F and G, with weight 13·712 gms. or 211·6 gr. troy, and double that amount respectively, are much more common than the others. The great majority of the weights are cubical and made of chert, and these are on the whole more accurate than those of other shapes and materials.

With the exception of a few weights which may doubtfully be multiples of the shekel, none bear any relation to the Babylonian system, moreover the shapes are different. The Egyptian *beqa* has a weight nearly the same as Group F, but again the shapes differ. The system may be regarded as quite independent.[1]

The weights are in the great majority of cases made with considerable accuracy, much more so than in other countries at that period. The unit does not change during the whole period of the occupation of the site.

[1] See Appendix II, p. 672.

Appendix I.—Tabulation of Weights.

Field No.	Condition. Perfect.	Slightly Chipped.	Chipped.	Badly Chipped.	Weight in Grammes.	Types. A.	B.	C.	D.	E.	Sizes (Ins.). Length.	Width.	Height.	Diameter.	Materials. Chert.	Agate.	Limestone.	Steatite.	Paste.	Jasper.	Slate.	Black stone (Quartzite?).	Not identified.	Locus. Block.	House.	Room.	Level (ft.)	Designation.
DK 12774	×	—	—	—	0·550	×	—	—	—	—	0·3	0·28	0·19	—	×	—	—	—	—	—	—	—	—	9	XII	94	-10·1	?
„ 6281	×	—	—	—	0·813	×	—	—	—	—	0·32	0·32	0·19	—	×	—	—	—	—	—	—	—	—	7	VIII	23	-16·3	A
„ 11785	—	×	—	—	0·867	×	—	—	—	—	0·32	0·30	0·28	—	×	—	—	—	—	—	—	—	—	14	I	4	-9·0	„
„ 5555	×	—	—	—	0·879	×	—	—	—	—	0·3	0·3	0·28	—	×	—	—	—	—	—	—	—	—	1	„	74	-13·4	„
„ 4244	×	—	—	—	0·928	×	—	—	—	—	0·32	0·32	0·25	—	×	—	—	—	—	—	—	—	—	6	III	17	-10·4	„
„ 6262	—	—	×	—	1·552	×	—	—	—	—	0·55	0·5	0·24	—	—	—	—	—	—	—	—	—	—	7	VIII	23	-16·3	B
„ 4461	×	—	—	—	1·684	×	—	—	—	—	0·36	0·36	0·36	—	×	—	—	—	—	—	—	—	—	First St. (9)			-12·8	„
„ 4381	×	—	—	—	1·734	×	—	—	—	—	0·39	0·39	0·3	—	×	—	—	—	—	—	—	—	—	First St. (9)			-13·6	„
„ 12284	×	—	—	—	1·750	×	—	—	—	—	0·41	0·4	0·37	—	—	—	—	×	—	—	—	—	—	18	—	0	-8·7	„
„ 8989	×	—	—	—	1·754	×	—	—	—	—	0·4	0·4	0·26	—	×	—	—	—	—	—	—	—	—	First St. (14)			-9·0	„
„ 8634	×	—	—	—	1·815	×	—	—	—	—	0·4	0·3	0·3	—	×	—	—	—	—	—	—	—	—	7	VIII	16	-8·1	„
„ 11199	×	—	—	—	1·835	×	—	—	—	—	0·38	0·38	0·34	—	×	—	—	—	—	—	—	—	—	Central St.			-6·4	„
„ 10172	×	—	—	—	1·891	×	—	—	—	—	0·45	0·45	0·27	—	×	—	—	—	—	—	—	—	—	21	IV	23	-2·6	„
„ 5023	—	—	×	—	3·306	×	—	—	—	—	0·5	0·43	0·4	—	×	—	—	—	—	—	—	—	—	1	VII	37	-10·4	D
„ 10250	×	—	—	—	3·313	×	—	—	—	—	0·48	0·48	0·39	—	×	—	—	—	—	—	—	—	—	18	—	35	-5·2	„
„ 7120	×	—	—	—	3·329	×	—	—	—	—	0·5	0·46	0·37	—	—	—	×	—	—	—	—	—	—	10A	—	7	-19·8	„
„ 4473	×	—	—	—	3·343	×	—	—	—	—	0·49	0·49	0·41	—	×	—	—	—	—	—	—	—	—	First St. (9)			-12·5	„
„ 11831	—	×	—	—	3·362	×	—	—	—	—	0·45	0·4	0·45	—	×	—	—	—	—	—	—	—	—	15	I	1	-10·7	„
„ 4973	×	—	—	—	3·367	×	—	—	—	—	0·5	0·5	0·36	—	×	—	—	—	—	—	—	—	—	3	„	6	-15·4	„
„ 4111	×	—	—	—	3·394	×	—	—	—	—	0·5	0·49	0·4	—	×	—	—	—	—	—	—	—	—	9	II	11	-8·3	„
„ 7112	×	—	—	—	3·414	×	—	—	—	—	0·5	0·4	0·4	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 10(III) and 12.			-21·7	„
„ 10850	×	—	—	—	3·381	×	—	—	—	—	0·5	0·48	0·4	—	×	—	—	—	—	—	—	—	—	8A	—	44	-4·8	„
„ 11602	—	×	—	—	3·405	×	—	—	—	—	0·49	0·47	0·4	—	×	—	—	—	—	—	—	—	—	16	II	13	-4·2	„
„ 10340	×	—	—	—	3·418	×	—	—	—	—	0·47	0·47	0·42	—	×	—	—	—	—	—	—			First St. (2)			-5·6	„
„ 11521	—	×	—	—	3·424	×	—	—	—	—	0·51	0·5	0·35	—	×	—	—	—	—	—	—	—	—	Central St.			-8·1	„
„ 5102	×	—	—	—	3·422	×	—	—	—	—	0·5	0·49	0·32	—	×	—	—	—	—	—	—	—	—	1	V	47	-8·4	„
„ 3856	×	—	—		3·465	×	—	—	—	—	0·5	0·5	0·38	—	—	×	—	—	—	—	—	—	—	6	III	26	-8·4	„
„ 10969	—	×	—	—	3·484	×	—	—	—	—	0·45	0·45	0·45	—	×	—	—	—	—	—	—	—	—	8	„	47	-6·9	„
„ 4071	—	×	—	—	3·520	×	—	—	—	—	0·55	0·5	0·39	—	—	×	—	—	—	—	—	—	—	5	I	12	-8·9	„
„ 5403	×	—	—	—	3·554	×	—	—	—	—	0·58	0·58	0·31	—	—	—	—	×	—	—	—	—	—	1	VI	40	-8·7	„
„ 11929	—	×	—	—	3·556	×	—	—	—	—	0·51	0·5	0·38	—	×	—	—	—	—	—	—	—	—	19	—	5	-5·6	„
„ 7161	—	×	—	—	3·604	×	—	—	—	—	0·5	0·45	0·37	—	—	—	—	—	×	—	—	—	—	3	III	43	-14·4	„
„ 11163	—	—	×	—	3·640	×	—	—	—	—	0·5	0·5	0·38	—	×	—	—	—	—	—	—	—	—	Central St.			-6·4	„
„ 9651	×	—	—	—	3·780	×	—	—	—	—	0·51	0·5	0·45	—	—	—	—	—	—	×	—	—	—	7	IX	29	-31·6	„
„ 10479	—	—	—	×	6·195	—	×	—	—	—	—	—	5·4	0·71	—	×	—	—	—	—	—	—	—	8A	—	37	-1·4	E
„ 4459	×	—	—	—	6·305	×	—	—	—	—	0·6	0·6	0·45	—	×	—	—	—	—	—	—	—	—	9	VI	33	-4·7	„
„ 12148	—	—	×	—	6·548	×	—	—	—	—	0·6	0·6	0·48	—	×	—	—	—	—	—	—	—	—	Surface.			—	„
„ 3830	×	—	—	—	6·600	×	—	—	—	—	0·6	0·6	0·45	—	×	—	—	—	—	—	—	—	—	First St. (13)			-9·0	„
„ 5544	—	—	×	—	6·705	×	—	—	—	—	0·63	0·45	0·45		×	—	—	—	—	—	—	—	—	1	I	63	-16·0	„

TABULATION OF WEIGHTS—*contd.*

Field No.	Condition.				Weight in Grammes.	Types.					Sizes (Ins.).				Materials.									Locus.			Level (ft.).	Designation.
	Perfect.	Slightly Chipped.	Chipped.	Badly Chipped.		A.	B.	C.	D.	E.	Length.	Width.	Height.	Diameter.	Chert.	Agate.	Limestone.	Steatite.	Paste.	Jasper.	Slate.	Black stone (Quartzite?).	Not identified.	Block.	House.	Room.		
DK 5152	—	×	—	—	6·759	×	—	—	—	—	0·55	0·53	0·45	—	×	—	—	—	—	—	—	—	—	3	V	10	−11·0	E
„ 10351	—	×	—	—	6·774	×	—	—	—	—	0·58	0·58	0·5	—	×	—	—	—	—	—	—	—	—	6A	—	37	−5·6	„
„ 7034	×	—	—	—	6·779	×	—	—	—	—	0·58	0·57	0·5	—	—	—	×	—	—	—	—	—	—	3	III	26	−15·5	„
„ 4297	×	—	—	—	6·781	×	—	—	—	—	0·6	0·6	0·5	—	×	—	—	—	—	—	—	—	—	6	II	9	−13·2	„
„ 7365	—	×	—	—	6·791	×	—	—	—	—	0·59	0·59	0·5	—	×	—	—	—	—	—	—	—	—	1	III	16	−13·2	„
„ 10387	×	—	—	—	6·791	—	×	—	—	—	—	—	0·8	0·35	—	—	—	—	—	—	—	—	×	Surface			−10·95	„
„ 11211	—	—	×	—	6·792	×	—	—	—	—	0·55	0·64	0·5	—	—	—	—	—	—	—	—	—	×	15	VI	29	−3·5	„
„ 11494	×	—	—	—	6·802	×	—	—	—	—	0·57	0·57	0·54	—	×	—	—	—	—	—	—	—	—	21	IV	30	−7·7	„
„ 4097	×	—	—	—	6·817	×	—	—	—	—	0·6	0·6	0·45	—	×	—	—	—	—	—	—	—	—	3	VI	31	−11·0	„
„ 12042	—	×	—	—	6·824	×	—	—	—	—	0·65	0·62	0·45	—	×	—	—	—	—	—	—	—	—	9A	VIII	54	−5·5	„
„ 3286	×	—	—	—	6·830	×	—	—	—	—	0·5	0·5	0·5	—	—	—	—	—	—	—	—	×	—	9	I	22	−3·7	„
„ 11459	—	—	×	—	6·841	×	—	—	—	—	0·62	0·62	0·48	—	×	—	—	—	—	—	—	—	—	Central St.			−8·1	„
„ 5460	—	—	×	—	6·848	×	—	—	—	—	0·62	0·55	0·56	—	—	—	—	×	—	—	—	—	—	1	I	12	−11·5	„
„ 11043	×	—	—	—	6·862	×	—	—	—	—	0·65	0·65	0·45	—	×	—	—	—	—	—	—	—	—	18	—	9	−7·8	„
„ 10847	×	—	—	—	6·877	×	—	—	—	—	0·58	0·58	0·5	—	×	—	—	—	—	—	—	—	—	18	—	7	−6·0	„
„ 10224	—	×	—	—	6·932	—	×	—	—	—	—	—	0·57	0·72	—	×	—	—	—	—	—	—	—	7	II	93	−5·7	„
„ 11049	—	×	—	—	6·880	×	—	—	—	—	0·62	0·62	0·5	—	×	—	—	—	—	—	—	—	—	22	I	4	−5·7	„
„ 5744	×	—	—	—	6·957	×	—	—	—	—	0·6	0·59	0·51	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 1 and 10.		(V)	−9·8	„
„ 9448	—	×	—	—	7·296	×	—	—	—	—	0·63	0·63	0·5	—	×	—	—	—	—	—	—	—	—	7	I	15	−24·2	„
„ 4746	×	—	—	—	7·310	—	×	—	—	—	—	—	0·55	0·75	—	×	—	—	—	—	—	—	—	12	„	10	−6·4	„
„ 10790	—	×	—	—	7·900	×	—	—	—	—	0·67	0·67	0·5	—	×	—	—	—	—	—	—	—	—	8A	—	44	−3·3	?
„ 6346	—	—	×	—	8·850	×	—	—	—	—	0·69	0·60	0·65	—	—	×	—	—	—	—	—	—	—	Bet. Bls. 1 and 10 (I).			−12·5	?
„ 4582	×	—	—	—	13·079	×	—	—	—	—	0·7	0·7	0·65	—	—	—	×	—	—	—	—	—	—	2	I	7	−15·2	F
„ 10941	—	—	×	—	13·115	×	—	—	—	—	0·73	0·73	0·63	—	×	—	—	—	—	—	—	—	—	21	IV	24	−5·7	„
„ 4990	—	—	×	—	13·284	—	—	×	—	—	—	—	0·57	0·3	—	—	—	×	—	—	—	—	—	11	III	40	−13·6	„
„ 10775	×	—	—	—	13·373	×	—	—	—	—	0·74	0·71	0·62	—	—	—	—	—	—	—	—	—	×	Bet. Bls. 13 (51) and 21.			−5·1	„
„ 5744	—	×	—	—	13·372	×	—	—	—	—	0·73	0·73	0·6	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 1 and 10.		(V)	−9·8	„
„ 9625	—	—	×	—	13·390	×	—	—	—	—	0·76	0·76	0·6	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 1 and 10 (I).			−23·2	„
„ 11941	—	×	—	—	13·407	—	×	—	—	—	—	—	0·45	0·99	—	—	—	—	—	—	—	—	×	19	—	5	−5·6	„
„ 6218	—	—	×	—	13·440	×	—	—	—	—	0·75	0·75	0·6	—	×	—	—	—	—	—	—	—	—	1	I	88	−16·0	„
„ 4441	—	—	×	—	13·447	×	—	—	—	—	0·71	0·7	0·65	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 1 and 3.		(III)	−10·0	„
„ 4645	—	—	×	—	13·450	×	—	—	—	—	0·7	0·7	0·58	—	×	—	—	—	—	—	—	—	—	1	I	13	−9·1	„
„ 5809	—	—	×	—	13·451	×	—	—	—	—	0·72	0·61	0·6	—	×	—	—	—	—	—	—	—	—	1	IV	26	−13·0	„
„ 4535	—	—	×	—	13·456	×	—	—	—	—	0·8	0·75	0·51	—	—	—	—	—	—	—	—	—	—	1	III	3	−7·1	„
„ 10583	—	×	—	—	13·459	×	—	—	—	—	0·74	0·72	0·58	—	—	—	—	—	—	—	—	×	—	9	X	85	−4·6	„
„ 3687	—	—	×	—	13·487	×	—	—	—	—	0·8	0·8	0·6	—	×	—	—	—	—	—	—	—	—	7	II	80	−9·4	„
„ 3857	×	—	—	—	13·512	×	—	—	—	—	0·7	0·7	0·65	—	—	×	—	—	—	—	—	—	—	3	„	21	−6·2	„

Tabulation of Weights—*contd.*

Field No.	Condition: Perfect.	Slightly Chipped.	Chipped.	Badly Chipped.	Weight in Grammes.	Types: A.	B.	C.	D.	E.	Sizes (Ins.): Length.	Width.	Height.	Diameter.	Materials: Chert.	Agate.	Limestone.	Steatite.	Paste.	Jasper.	Slate.	Black stone (Quartzite?).	Not identified.	Locus: Block.	House.	Room.	Level (ft.).	Designation.
DK 3714 .	×	—	—	—	13·540	×	—	—	—	—	0·78	0·78	0·58	—	×	—	—	—	—	—	—	—	—	3	V	9	-7·1	F
" 5417 .	×	—	—	—	13·555	×	—	—	—	—	0·75	0·7	0·66	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 12 and 12A.			-14·0	"
" 6629 .	×	—	—	—	13·576	×	—	—	—	—	0·72	0·71	0·62	—	×	—	—	—	—	—	—	—	—	9	VI	38	-7·5	"
" 10801 .	—	×	—	—	13·587	×	—	—	—	—	0·8	0·8	0·58	—	—	×	—	—	—	—	—	—	—	First St. (30)			-7·0	"
" 3357 .	—	—	×	—	13·594	×	—	—	—	—	0·78	0·75	0·58	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 9 (IV) and 9A.			-5·5	"
" 11776 .	—	—	×	—	13·600	×	—	—	—	—	0·75	0·75	0·65	—	×	—	—	—	—	—	—	—	—	27	II	9	-7·6	"
" 12673 .	—	—	×	—	13·610	×	—	—	—	—	0·8	0·8	0·57	—	×	—	—	—	—	—	—	—	—	24	"	4	-6·1	"
" 6056 .	—	—	×	—	13·621	×	—	—	—	—	0·76	0·76	0·6	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 10A and 11.			-21·7	"
" 6415 .	×	—	—	—	13·625	×	—	—	—	—	0·8	0·76	0·57	—	×	—	—	—	—	—	—	—	—	4	—	16	-17·7	"
" 6057 .	—	—	×	—	13·642	×	—	—	—	—	0·9	0·83	0·48	—	—	—	—	—	—	—	—	—	×	Bet. Bls. 10A and 11.			-21·7	"
" 10656 .	—	×	—	—	13·656	×	—	—	—	—	0·76	0·76	0·62	—	×	—	—	—	—	—	—	—	—	21	I	1	-5·0	"
" 12864 .	×	—	—	—	13·660	×	—	—	—	—	0·72	0·72	0·63	—	×	—	—	—	—	—	—	—	—	9	X	88	-8·8	"
" 11940 .	×	—	—	—	13·666	×	—	—	—	—	0·78	0·75	0·64	—	×	—	—	—	—	—	—	—	—	19	—	5	-5·6	"
" 9420 .	×	—	—	—	13·670	×	—	—	—	—	0·8	0·75	0·6	—	×	—	—	—	—	—	—	—	—	7	I	3	-24·8	"
" 11036 .	×	—	—	—	13·677	×	—	—	—	—	0·75	0·75	0·7	—	×	—	—	—	—	—	—	—	—	8	III	47	-6·1	"
" 5610 .	×	—	—	—	13·680	×	—	—	—	—	0·9	0·88	0·51	—	×	—	—	—	—	—	—	—	—	11	"	25	-20·2	"
" 3758 .	×	—	—	—	13·680	×	—	—	—	—	0·75	0·75	0·6	—	×	—	—	—	—	—	—	—	—	6	I	3	- 1·1	"
" 5610A .	×	—	—	—	13·690	×	—	—	—	—	0·78	0·78	0·55	—	×	—	—	—	—	—	—	—	—	11	III	25	-20·2	"
" 5552 .	×	—	—	—	13·697	×	—	—	—	—	0·88	0·8	0·55	—	×	—	—	—	—	—	—	—	—	1	II	33	-16·1	"
" 4730 .	—	—	×	—	13·709	×	—	—	—	—	0·77	0·77	0·58	—	×	—	—	—	—	—	—	—	—	7	I	15	-8·7	"
" 4655 .	×	—	—	—	13·757	×	—	—	—	—	0·83	0·83	0·6	—	×	—	—	—	—	—	—	—	—	1	"	17	-10·2	"
" 5450 .	×	—	—	—	13·766	×	—	—	—	—	0·7	0·7	0·6	—	×	—	—	—	—	—	—	—	—	9	VII	47	-17·9	"
" 11933 .	—	×	—	—	13·768	×	—	—	—	—	0·78	0·78	0·62	—	×	—	—	—	—	—	—	—	—	Surface			—	"
" 11937 .	×	—	—	—	13·873	—	×	—	—	—	—	—	0·68	0·9	—	×	—	—	—	—	—	—	—	17	III	20	-6·6	"
" 11934 .	—	—	×	—	13·914	×	—	—	—	—	0·81	0·8	0·55	—	—	×	—	—	—	—	—	—	—	Surface			—	"
" 5734 .	×	—	—	—	13·917	×	—	—	—	—	0·78	0·7	0·62	—	×	—	—	—	—	—	—	—	—	1	IV	23	-13·0	"
" 11153 .	×	—	—	—	13·954	×	—	—	—	—	0·78	0·78	0·65	—	×	—	—	—	—	—	—	—	—	6A	—	38	-7·8	"
" 3845 .	—	—	×	—	13·970	—	—	—	—	×	1·96	—	—	0·55	—	—	—	—	—	—	×	—	—	3	II	34	-13·0	"
" 10990 .	—	×	—	—	13·972	×	—	—	—	—	0·8	0·8	0·55	—	×	—	—	—	—	—	—	—	—	18	—	48	-6·1	"
" 6889 .	×	—	—	—	14·001	×	—	—	—	—	0·79	0·79	0·56	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 1 (III) and 7.			-15·0	"
" 11968 .	—	—	×	—	14·023	×	—	—	—	—	0·78	0·78	0·62	—	×	—	—	—	—	—	—	—	—	19	—	9	-4·5	"
3760 .	×	—	—	—	14·094	×	—	—	—	—	0·73	0·72	0·56	—	×	—	—	—	—	—	—	—	—	9	III	35	-5·8	"
" 3332 .	—	—	×	—	14·177	×	—	—	—	—	0·75	0·7	0·62	—	×	—	—	—	—	—	—	—	—	9	II	11	-4·8	"
" 11064 .	—	×	—	—	14·188	×	—	—	—	—	0·79	0·79	0·56		×	—	—	—	—	—	—	—	—	18	—	19	-5·6	"
" 12538 .	—	×	—	—	14·290	×	—	—	—	—	0·78	0·78	0·68	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 1 (III) and 7			-15·0	"
" 3746 .	×	—	—	—	15·937	×	—	—	—	—	0·72	0·72	0·6	—	×	—	—	—	—	—	—	—	—	9	VII	17	-7·3	"
" 3542 .	×	—	—	—	16·640	×	—	—	—	—	0·75	0·65	0·65	—	×	—	—	—	—	—	—	—	—	7	II	89	-6·2	"

TABULATION OF WEIGHTS—*contd.*

Field No.	Condition. Perfect.	Slightly Chipped.	Chipped.	Badly Chipped.	Weight in Grammes.	Types. A.	B.	C.	D.	E.	Sizes (Ins.). Length.	Width.	Height.	Diameter.	Materials. Chert.	Agate.	Limestone.	Steatite.	Paste.	Jasper.	Slate.	Black stone (Quartzite?).	Not identified.	Locus. Block.	House.	Room.	Level (ft.).	Designation.
DK 10694 .	—	—	×	—	17·183	×	—	—	—	—	0·8	0·8	0·66	—	×	—	—	—	—	—	—	—	—	Surface			—	?
" 5679 .	×	—	—	—	17·970	—	—	×	—	—	—	—	0·91	0·78	—	—	—	—	—	—	—	—	×	Bet. Bls. 1 (III) and 3.			-12·4	?
" 10862 .	—	—	×	—	20·370	×	—	—	—	—	0·93	0·85	0·67	—	×	—	—	—	—	—	—	—	—	21	IV	20	-5·8	?
" 5503 .	×	—	—	—	25·354	×	—	—	—	—	0·91	0·89	0·69	—	—	—	—	—	—	—	—	×	—	Bet. Bls. 12 and 12A.			-18·3	G
" 4296 .	—	—	—	×	26·050	×	—	—	—	—	0·86	0·86	0·85	—	—	—	×	—	—	—	—	—	—	5	I	9	-13·2	"
" 10618 .	×	—	—	—	26·312	×	—	—	—	—	0·95	0·93	0·8	—	×	—	—	—	—	—	—	—	—	9	IX	66	-5·0	"
" 5728 .	×	—	—	—	26·480	—	×	—	—	—	—	—	0·5	1 39	—	—	—	—	—	—	×	—	—	1A	—	1	-16·2	"
" 5438 .	—	—	—	×	26·513	×	—	—	—	—	0·96	0·96	0·8	—	×	—	—	—	—	—	—	—	—	10	I	4	-11·4	"
" 3300 .	—	—	×	—	26·597	×	—	—	—	—	0·92	0·92	0·75	—	×	—	—	—	—	—	—	—	—	8	"	8	-0·96	"
" 11388 .	—	—	×	—	26·751	×	—	—	—	—	0·93	0·93	0·79	—	×	—	—	—	—	—	—	—	—	18	—	37	-7·5	"
" 3535 .	—	—	×	—	26·836	×	—	—	—	—	0·9	0 9	0·8	—	×	—	—	—	—	—	—	—	—	7	II	89	-7·3	"
" 10115 .	—	—	×	—	26·884	×	—	—	—	—	0·91	0·9	0·8	—	×	—	—	—	—	—	—	—	—	First St. (29)			-7·6	"
" 4595 .	—	—	×	—	26·995	×	—	—	—	—	0·96	0·96	0·8	—	×	—	—	—	—	—	—	—	—	1	I	10	-10·6	"
" 4858 .	—	—	—	×	27·044	×	—	—	—	—	0·95	0·9	0·85	—	×	—	—	—	—	—	—	—	—	1	VI	56	-7·8	"
" 5839 .	—	—	—	×	27·067	×	—	—	—	—	0·95	0·95	0·72	—	×	—	—	—	—	—	—	—	—	9A	V	66	-14·0	"
" 5440 .	—	—	×	—	27·068	×	—	—	—	—	0·96	0·96	0·76	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 12 and 12A.			-17·5	"
" 9628 .	—	—	×	—	27·070	×	—	—	—	—	1 06	1·0	0·61	—	—	—	—	—	—	—	—	—	×	7	I	14	-28·7	"
" 5376 .	×	—	—	—	27·086	×	—	—	—	—	0·92	0·92	0·95	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 9A and 12A.			-15·7	"
" 7305 .	×	—	—	—	27·090	×	—	—	—	—	0·95	0·95	0·75	—	×	—	—	—	—	—	—	—	—	7	VIII	22	-14·3	"
" 10574 .	—	—	×	—	27·096	×	—	—	—	—	0·98	0 95	0·8	—	×	—	—	—	—	—	—	—	—	16	III	16	-6·2	"
" 10239 .	—	—	×	—	27 103	×	—	—	—	—	1·0	0·98	0 7	—	×	—	—	—	—	—	—	—	—	First St. (29)			-6·5	"
" 3607 .	—	—	×	—	27·113	×	—	—	—	—	0·95	0·95	0·75	—	×	—	—	—	—	—	—	—	—	7	II	89	-7·4	"
" 10899 .	—	×	—	—	27·117	×	—	—	—	—	0·01	0·91	0·83	—	×	—	—	—	—	—	—	—	—	8A	—	44	-6·5	"
" 3866 .	—	—	×	—	27 120	×	—	—	—	—	0·97	0·91	0·79	—	×	—	—	—	—	—	—	—	—	3	VI	47	-13·1	"
" 11418 .	×	—	—	—	27·139	×	—	—	—	—	0·9	0·9	0·85	—	×	—	—	—	—	—	—	—	—	Central St.			-8·4	"
" 9810 .	×	—	—	—	27·150	×	—	—	—	—	0 97	0·97	0·8	—	×	—	—	—	—	—	—	—	—	7	I	3	-32·9	"
" 5515 .	—	—	×	—	27·164	×	—	—	—	—	1·0	1·0	0·72	—	×	—	—	—	—	—	—	—	—	12	V	89	-13·1	"
" 11904 .	—	—	×	—	27·174	×	—	—	—	—	0·99	0·97	0·72	—	×	—	—	—	—	—	—	—	—	16	III	16	-9·7	"
" 5177 .	—	—	×	—	27 177	×	—	—	—	—	0·95	0·95	0 77	—	×	—	—	—	—	—	—	—	—	12A	II	19	-11·8	"
" 8437	—	—	—	×	27·180	×	—	—	—	—	0·07	0·92	0·75	—	×	—	—	—	—	—	—	—	—	9	III	35	-4·7	"
" 3908 .	—	—	×	—	27·200	×	—	—	—	—	1·0	1·0	0·68	—	×	—	—	—	—	—	—	—	—	3	II	23	-11·8	"
" 5450 .	×	—	—	—	27·203	×	—	—	—	—	0·9	0·9	0·79	—	×	—	—	—	—	—	—	—	—	9	VII	47	-17·9	"
" 4711 .	—	—	×	—	27·227	×	—	—	—	—	0·92	0·9	0·76	—	×	—	—	—	—	—	—	—	—	0	VI	79	-6·3	"
" 3655 .	×	—	—	—	27·229	×	—	—	—	—	0·95	0·9	0·8	—	×	—	—	—	—	—	—	—	—	7	I	9	-5·6	"
" 3063 .	×	—	—	—	27 276	×	—	—	—	—	0·95	0 9	0 75	—	×	—	—	—	—	—	—	—	—	0	III	35	-5·8	"
" 12702 .	—	×	—	—	27·293	×	—	—	—	—	0 91	0·85	0 81	—	—	—	—	—	—	—	—	—	×	9	X	80	-10·5	"
" 10259 .	×	—	—	—	27·295	×	—	—	—	—	0·93	0·93	0 64	—	—	—	—	—	—	—	—	—	×	West Street			-2·8	"

TABULATION OF WEIGHTS—*contd.*

Field No.	Condition. Perfect.	Slightly Chipped.	Chipped.	Badly Chipped.	Weight in Grammes.	Types. A.	B.	C.	D.	E.	Sizes (Ins.). Length.	Width.	Height.	Diameter.	Materials. Chert.	Agate.	Limestone.	Steatite.	Paste.	Jasper.	Slate.	Black stone (Quartzite?).	Not identified.	Locus. Block.	House.	Room.	Level (ft.).	Designation.
DK 5895 .	×	—	—	—	27·298	×	—	—	—	—	0·9	0·9	0·88	—	×	—	—	—	—	—	—	—	—	7	III	52	-11·9	G
„ 12422 .	×	—	—	—	27·326	×	—	—	—	—	0·98	0·95	0·7	—	×	—	—	—	—	—	—	—	—	6	„	23	-8·9	„
„ 11089 .	—	—	×	—	27·333	×	—	—	—	—	0·9	0·9	0·8	—	×	—	—	—	—	—	—	—	—	8A	—	44	-8·0	„
„ 5408 .	—	—	×	—	27·336	×	—	—	—	—	0·95	0·9	0·75	—	×	—	—	—	—	—	—	—	—	11	III	26	-19·2	„
„ 5907 .	—	—	×	—	27·336	×	—	—	—	—	0·96	0·96	0·75	—	×	—	—	—	—	—	—	—	—	1	II	9	-14·0	„
„ 4621 .	—	—	×	—	27·352	×	—	—	—	—	0·9	0·9	0·78	—	×	—	—	—	—	—	—	—	—	1	I	17	-10·6	„
„ 4940 .	×	—	—	—	27·362	×	—	—	—	—	0·95	0·75	0·7	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 9A and 12A.			-15·2	„
„ 3983 .	×	—	—	—	27·437	×	—	—	—	—	1·0	1·0	0·6	—	×	—	—	—	—	—	—	—	—	2	II	25	-12·6	„
„ 10804 .	—	—	×	—	27·440	×	—	—	—	—	1·2	1·0	0·62	—	×	—	—	—	—	—	—	—	—	21	IV	29	-5·8	„
„ 12765 .	×	—	—	—	27·462	×	—	—	—	—	0·96	0·95	0·77	—	×	—	—	—	—	—	—	—	—	14	II	17	-11·3	„
„ 5110 .	—	—	×	—	27·496	×	—	—	—	—	0·95	0·93	0·75	—	×	—	—	—	—	—	—	—	—	3	V	10	-11·0	„
„ 6293 .	—	—	×	—	27·498	×	—	—	—	—	0·99	0·95	0·72	—	—	—	×	—	—	—	—	—	—	1	I	73	-17·2	„
„ 3412 .	×	—	—	—	27·515	×	—	—	—	—	0·95	0·9	0·75	—	×	—	—	—	—	—	—	—	—	7	VIII	16	-6·0	„
„ 12026 .	—	×	—	—	27·527	×	—	—	—	—	0·9	0·9	0·82	—	×	—	—	—	—	—	—	—	—	18	—	100	-6·9	„
„ 4241 .	—	—	—	×	27·532	×	—	—	—	—	0·97	0·97	0·75	—	×	—	—	—	—	—	—	—	—	6	III	17	-10·4	„
„ 11004 .	—	—	×	—	27·575	×	—	—	—	—	1·0	0·85	0·8	—	—	—	—	—	—	—	—	—	×	6A	—	40	-8·2	„
„ 12510 .	—	—	×	—	27·667	×	—	—	—	—	0·98	0·94	0·71	—	×	—	—	—	—	—	—	—	—	6A	—	34	-8·4	„
„ 5349 .	×	—	—	—	27·749	×	—	—	—	—	1·0	0·97	0·73	—	×	—	—	—	—	—	—	—	—	4	—	14	-9·4	„
„ 5864 .	—	—	×	—	27·825	×	—	—	—	—	0·9	0·9	0·73	—	—	—	×	—	—	—	—	—	—	7	III	52	-11·6	„
„ 4090 .	×	—	—	—	28·020	×	—	—	—	—	1·0	1 0	0·75	—	×	—	—	—	—	—	—	—	—	3	VI	31	-11·9	„
„ 11154 .	—	×	—	—	28·083	×	—	—	—	—	0·92	0·92	0·81	—	×	—	—	—	—	—	—	—	—	6A	—	38	-7·8	„
„ 3342 .	—	—	—	×	28·111	×	—	—	—	—	0·9	0·9	0·58	—	—	—	×	—	—	—	—	—	—	Bet. Bls. 7 & 8			-5·6	„
„ 11152 .	—	×	—	—	28·366	×	—	—	—	—	0·95	0·95	0·82	—	×	—	—	—	—	—	—	—	—	6A	—	38	-7·8	„
„ 5594 .	—	—	×	—	28·437	×	—	—	—	—	0·98	0·96	0·73	—	×	—	—	—	—	—	—	—	—	10	IV	74	-20·3	„
„ 10894 .	—	×	—	—	28·463	×	—	—	—	—	1·12	1·0	0·65	—	—	—	—	—	—	—	—	—	×	15	VI	33	-3·3	„
„ 4486 .	×	—	—	—	28·470	—	—	—	—	×	1·8	—	—	0·78	—	—	—	—	—	—	—	×	—	7	VIII	53	-4·1	„
„ 3912 .	—	—	×	—	28·693	×	—	—	—	—	0·98	0·98	0·68	—	×	—	—	—	—	—	—	—	—	3	V	13	-8·2	„
„ 10526 .	—	×	—	—	28·844	×	—	—	—	—	0 95	0·95	0·8	—	×	—	—	—	—	—	—	—	—	21	IV	23	-3·8	„
„ 4622 .	×	—	—	—	29·225	×	—	—	—	—	1·0	1·0	0·78	—	×	—	—	—	—	—	—	—	—	1	I	17	-10·6	„
„ 6693 .	—	—	—	×	30·813	×	—	—	—	—	1·05	1·05	0·85	—	—	—	×	—	—	—	—	—	—	Bet. Bls. 1 and 10 (I).			-13·5	?
„ 6778 .	—	—	×	—	31·964	×	—	—	—	—	0·95	0·95	0·81	—	—	—	—	×	—	—	—	—	—	Bet. Bls. 1 & 7			-14 0	?
„ 11232E	—	—	—	×	40·402	—	—	—	—	×	3·25	—	—	0·9	—	—	—	—	—	—	—	×	—	15	VI	28	-5·7	?
„ 5159 .	—	—	—	×	52·776	×	—	—	—	—	1·32	0 95	0·9	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 12 and 12A.			-10·2	H
„ 5568 .	—	—	—	×	52·861	×	—	—	—	—	1·18	1 15	0·95	—	×	—	—	—	—	—	—	—	—	1	II	33	-16·4	„
„ 5590 .	—	—	×	—	53·627	×	—	—	—	—	1·1	1·1	1·05	—	—	—	—	×	—	—	—	—	—	1	I	12	-14 8	„
„ 3403 .	—	—	×	—	53·820	×	—	—	—	—	1·2	1·2	0·9	—	×	—	—	—	—	—	—	—	—	4	—	10	-8·0	„
„ 4464 .	—	—	—	×	53·952	×	—	—	—	—	1·36	1·36	0·74	—	×	—	—	—	—	—	—	—	—	First St. (9)			-12·8	„
„ 11344	—	—	×	—	53 986	×	—	—	—	—	1·29	1·23	0 88	—	—	—	—	—	—	—	—	—	×	First St. (20)			-9 5	„
„ 4138 .	—	—	×	—	54·077	×	—	—	—	—	1 3	1·25	0·85	—	×	—	—	—	—	—	—	—	—	6	III	27	-10·7	„

TABULATION OF WEIGHTS—*contd.*

Field No.	Condition. Perfect.	Slightly Chipped.	Chipped.	Badly Chipped.	Weight in Grammes.	Types. A.	B.	C.	D.	E.	Sizes (Ins.). Length.	Width.	Height.	Diameter.	Materials. Chert.	Agate.	Limestone.	Steatite.	Paste.	Jasper.	Slate.	Black stone (Quartzite?).	Not identified.	Locus. Block.	House.	Room.	Level (ft.).	Designation.
DK 3483	—	—	×	—	54·076	×	—	—	—	—	1·35	1·35	0·75	—	×	—	—	—	—	—	—	—	—	9	III	26	-2·0	H
„ 5785	—	—	×	—	54·080	×	—	—	—	—	1 15	1·15	0·98	—	×	—	—	—	—	—	—	—	—	12A	I	15	-11·0	„
„ 6362	×	—	—	—	54·297	×	—	—	—	—	1·2	1·15	0·99	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 1 (III) and 7.			-14·4	„
„ 11646	—	—	×	—	54·400	×	—	—	—	—	1·4	1·16	0·82	—	—	—	—	—	—	—	—	—	×	23	II	13	-7·5	„
„ 10634	×	—	—	—	54·452	×	—	—	—	—	1·2	1·2	0·93	—	×	—	—	—	—	—	—	—	—	8A	—	44	-2·4	„
„ 10708	×	—	—	—	54·496	×	—	—	—	—	1·23	1·1	1·05	—	×	—	—	—	—	—	—	—	—	9	X	86	-6·5	„
„ 4676	—	—	×	—	54·510	×	—	—	—	—	1·1	1 1	1·0	—	×	—	—	—	—	—	—	—	—	10	III	55	-6·5	„
„ 10655	—	—	×	—	54·611	×	—	—	—	—	1·17	1·17	1·02	—	×	—	—	—	—	—	—	—	—	First St. (34)			-5·7	„
„ 3387	—	—	×	—	54·617	×	—	—	—	—	1·2	1·2	1·02	—	×	—	—	—	—	—	—	—	—	7	III	41	-4·8	„
„ 6677	—	—	×	—	54·653	×	—	—	—	—	1·2	1·2	0·99	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 1 (III) and 7.			-13·8	„
„ 4750	—	—	×	—	55·052	×	—	—	—	—	1·15	1·15	1·0	—	×	—	—	—	—	—	—	—	—	Bet. Bls. 1 (V) and 10.			-5·0	„
„ 11096	×	—	—	—	55·900	—	—	—	—	×	2·14	—	—	1·05	—	—	—	—	—	—	—	×	—	First St. (34)			-9·0	„
„ 10185	—	—	—	×	56·872	×	—	—	—	—	1·39	1·34	0·95	—	×	—	—	—	—	—	—	—	—	7	V	78	-3·2	?
„ 5302	×	—	—	—	96·476	—	—	—	—	×	3·84	—	—	0·95	—	—	—	—	—	—	—	×	—	1	IV	62	-13·7	?
„ 11417	—	—	×	—	123·864	×	—	—	—	—	1·62	1·58	1·38	—	—	—	—	—	—	—	—	—	×	16	I	10	-5·5	?
„ 5961	—	—	—	×	129·500	×	—	—	—	—	1·64	1·55	1 82	—	×	—	—	—	—	—	—	—	—	7	I	19	-12·4	J
„ 6394	—	—	—	×	133·5	×	—	—	—	—	1·5	1 5	1·42	—	×	—	—	—	—	—	—	—	—	1	I	82	-15·2	„
„ 6339	—	—	×	—	135·5	×	—	—	—	—	1·57	1·57	1·85	—	×	—	—	—	—	—	—	—	—	4	—	16	-19·5	„
„ 5865	—	—	×	—	136·058	×	—	—	—	—	1·64	1·6	1·25	—	×	—	—	—	—	—	—	—	—	7	III	52	-11·6	„
„ 3635	—	—	×	—	136·200	×	—	—	—	—	1·6	1·6	1·3	—	×	—	—	—	—	—	—	—	—	7	II	89	-9·4	„
„ 12409	—	—	×	—	136·750	×	—	—	—	—	1·58	1·58	1·37	—	×	—	—	—	—	—	—	—	—	18	—	40	-9·5	„
„ 11232D	—	×	—	—	151·424	—	—	—	—	×	3·88	—	—	1·20	—	—	—	—	—	—	—	×	—	15	VI	28	-5·7	?
„ 5581	×	—	—	—	185·5	—	×	—	—	—	—	—	1·7	2·15	×	—	—	—	—	—	—	—	—	10	III	67	-13·5	?
„ 6411	—	—	—	×	258·5	×	—	—	—	—	2·15	2·15	1·5	—	×	—	—	—	—	—	—	—	—	1	I	82	-15·2	L
„ 6109	—	—	×	—	264·5	×	—	—	—	—	2·2	2·2	1·41	—	—	—	×	—	—	—	—	—	—	1	I	21	-13·2	„
„ 12301	—	×	—	—	274·938	×	—	—	—	—	2·1	2·0	1·61	—	×	—	—	—	—	—	—	—	—	17	III	25	-8·1	„
„ 5607	×	—	—	—	1431·675	—	×	—	—	—	—	—	3·0	4·52	—	—	×	—	—	—	—	—	—	1	IV	63	-18·0	N
„ 5581	×	—	—	—	1445·85	—	×	—	—	—	—	—	3·15	4·4	—	—	×	—	—	—	—	—	—	10	III	67	-13·5	„
„ 10742	—	×	—	—	2576·31	—	×	—	—	—	—	—	3·9	5·4	—	—	×	—	—	—	—	—	—	9	IX	56	-6·4	V
„ 6320	×	—	—	—	2735·78	—	×	—	—	—	—	—	3·92	5·41	—	—	×	—	—	—	—	—	—	1	IV	23	-16·7	„
„ 10135	—	—	×	—	11467·58	—	—	—	×	—	—	—	3·9	7·1	—	—	×	—	—	—	—	—	—	26	II	14	-5·8	Y

Weights made in unusual stones are given below :—

Page 607. DK 6262 Alabaster.
„ 608. „ 10387 Black and white stone.[1]
„ 608. „ 11211 „ „ „ „
„ 608. „ 10775 „ „ „ „
„ 609. „ 6057 „ „ „ „
„ 610. „ 5679 Hard grey stone.
„ 610. „ 4296 Yellow limestone.
„ 610. „ 9628 Black and white stone.
Page 610. DK 12792 Black and white stone.
„ 610. „ 10259 „ „ „ „
„ 611. „ 11004 „ „ „ „
„ 611. „ 10894 „ „ „ „
„ 611. „ 11344 „ „ „ „
„ 612. „ 11646 „ „ „ „
„ 612. „ 11417 Hard green stone.

[1] For particulars of this black and white stone, now see p. 660.

CHAPTER XVIII.

REPORT ON THE HUMAN REMAINS EXCAVATED AT MOHENJO-DARO IN 1928-29

BY

B. S. Guha, M.A., A.M., Ph.D., Anthropologist, Zoological Survey of India,

AND

P. C. Basu, M.Sc., M.B., Bose Research Institute, Calcutta.

The human remains described in the following pages were unearthed by Dr. Mackay during the season 1928-29. The majority were found in the DK Area, G Section, Southern Portion, of which some were resting on a wall which forms the Southern side of Long Lane just south of the water-chute outside House II of Block 11.[1] These skeletons lay at levels ranging from 18·8 ft. to 23·1 ft. below datum, but only 6 ft. below the level of the ground surface. The second group of skeletons was found in Block 8A, lying on the staircase leading down into the well-room 42 from the east and only a few feet below the surface.[2]

Detailed accounts of the excavation of these remains and the objects found with them are given by Dr. Mackay in Chapter V (pp. 116-18). Our report, therefore, is confined to a consideration of the anatomical features of these skeletons only. On the archæological issues arising in connection with them we have not expressed any opinion, except in so far as they appear to us to have a direct bearing on their racial origins.

The condition and the general appearance of the bones are similar to those of the human remains previously excavated by Sir John Marshall at Mohenjo-daro and described by Col. Sewell and one of us.[3] Like those remains, these also are extremely fragile and the organic matrix has completely disappeared as a result of which considerable changes in the chemical composition of the bones have taken place.

The bones were treated with a solution of shellac in pure alcohol before removal from the site, but it was later found necessary to repeat the process several times in our laboratory before the disintegrating action of the saltpetre was thoroughly checked and the bones were sufficiently strengthened to be handled for the purposes of examination. As in the case of the Nāl[4] and the Mohenjo-daro[5] skeletons previously described, the broken and delicate nature of the bones precluded any possibility of our attempting to remove the impacted earth from the cranial cavities; the skulls, therefore, had to be impregnated with shellac *en bloc* and the outer surfaces alone could be cleaned. Of only four skulls could the measurements be taken.

The task of shellacing and cleaning the skulls and the restoration of their broken parts was entrusted to Mr. Himansu Kumar Bose, M.Sc., the Laboratory Assistant, and much of the success of this work is due to his skill and industry.

[1] Marked with a star in Pl. XVI. See also Pl. XXXII(a–d).

[2] Pl. XX, between rooms 41 and 43.

[3] Sewell and Guha, Human Remains, *Mohenjo-daro and the Indus Civilization*, Chap. XXX, Pls. CLX; CLXI.

[4] Sewell and Guha, Report on the Bones excavated at Nāl. *Mem. Arch. Surv. Ind.* (No. 35), Appendix V, p. 61.

[5] *Op. cit.*, vol. II, p. 599.

The total number of individuals represented in the collection is 15, of which nine were found in Long Lane, four in the well-room in Block 8A, one under débris in Block 7, and one in the north-western corner of the western courtyard of Block 1. Dr. Mackay regards all these fifteen skeletons as belonging to the Late Indus Valley Period, and he is of the opinion that in all cases except the last the individuals represented in the collection were probably killed by raiders when they were attempting to escape from the city and were subsequently buried. Judging from the photographs in Pl. XXXII, a and b, and the sketch of the position of the bodies (Fig. 1) there is hardly any doubt that these nine skeletons represent the victims

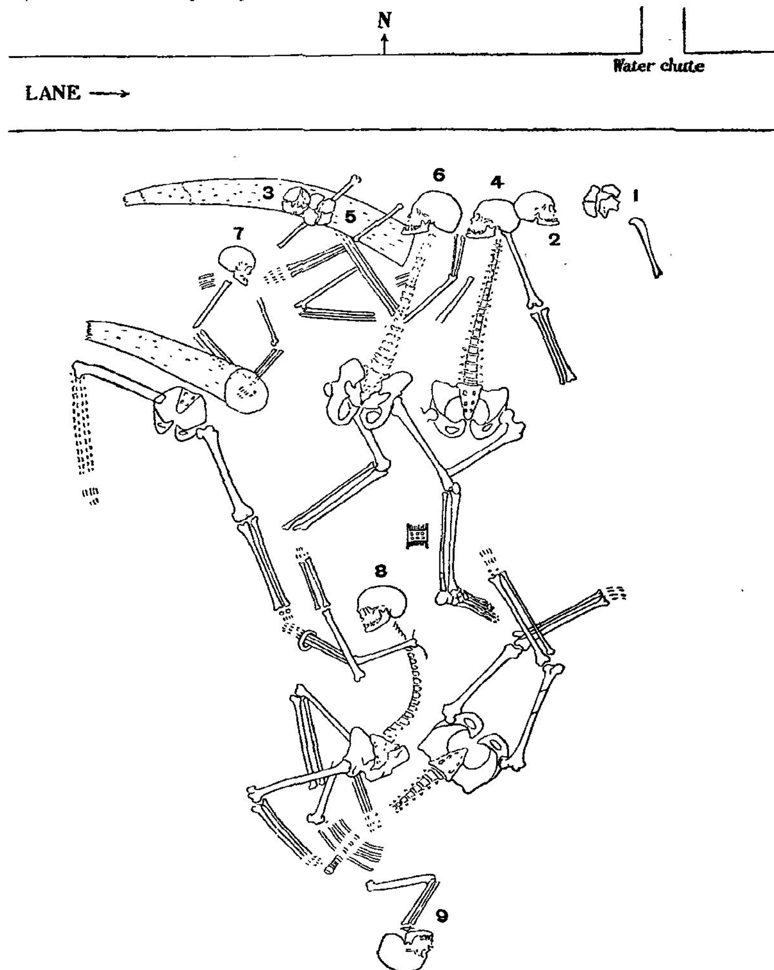


Fig 1.

of a tragedy. It is also probable that they were hastily covered up, as otherwise the depredations of vultures, jackals, etc., would have scattered the bones in all directions and no skeletons would have been complete ; though it must be remembered that in several skeletons, notably DK 7411A, DK 7411B, DK 7411C and DK 7411E, only a few fragments of the cranium and odd bits of bones were found, strongly suggesting that the bodies were disturbed and portions of the cadaverus removed.

But how to explain the charring of the bones in skeletons DK 7411B and DK 7411E, and the separation of the skulls from the rest of the bodies, especially in skeleton *DK 7829A ? Possibly the latter was due to decapitation, and the dis*order and intermingling of the skeletons, to the bodies being thrown in first, and the heads afterwards ?

The skeletons were measured according to the International Agreement. Where additional measurements were taken, the technique followed has either been described or full references given.

The skulls are referred to in this report by our catalogue numbers, but in order to avoid confusion the numbers originally given to them by the Archæological Survey have also been retained.

Description of Skeletons.

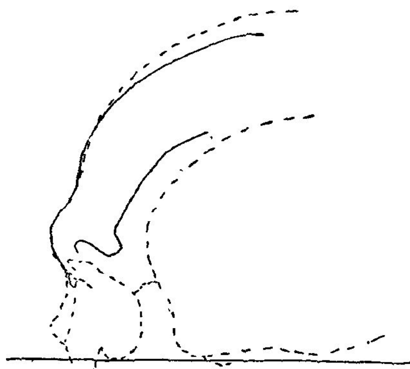
(1) *Skeleton No. DK 7411A* (*Cat. No. M. 35*).—This was the skeleton of a child found with eight other skeletons in Long Lane. Only the occipital portion of the skull, the right half of the lower jaw, the left humerus and a few broken pieces of bones were found ; the rest of the skeleton was missing. The skull is badly crushed and no useful measurements could be taken. The lower jaw *shows that the eruption of all the* deciduous teeth had been completed, but the permanent first molar had not erupted and the lateral incisor was about to be cut. The angle formed by the ascending ramus with the body of the mandible is 129 degrees. In children of about four years it is 140 degrees, but in adults the range of the angle is between 110 to 120 degrees.[1] Taking all these factors into consideration, the age of the child appears to have been over four and very likely nearer six years.

(2) *Skeleton No. DK 4711B* (*Cat. No. M. 34*).—This skull, found at the same level and somewhat further west, lay on its left side with the face towards the east.

The frontal part of the cranium, a few broken pieces of facial bones, including the greater part of the left half of the lower jaw, and broken bits of odd bones were

[1] Keith and Campion, The Growth of the Jaws and Face, *Dental Record*, 1922.

recovered, the rest of the skeleton being missing. The supra-orbital ridges are strongly developed and the forehead is receding (Fig. 2). The palate is highly



Scale 1 : 2. ***Fig. 2.*** *M. 34* ——— *New Holland*..........

arched and the mandibular notch very deep. The left half of the lower jaw shows the eruption of the third molar which, however, had fallen out of the socket. The skeleton, therefore, appears to be that of an adult male. There is undoubted evidence of calcination in some of the bones.

(3) *Skeleton DK 7411C (Cat. No. M. 33).*—This skull lay just above the tusk, No. 7411H, in close juxtaposition with skeleton No. 7411E (Cat. No. M. 30 (5)). Several pieces of the cranial bones and the upper half of the right femur were found. The cranial bones are extremely thin, and the epiphyses have not joined with the femoral shafts. There is little doubt, therefore, that both were parts of the same skeleton and belonged to a child.

(4) *Skeleton DK 7411D (Cat. No. M. 28).* **(Fig. 3 and Pl. CXLV, 4–5).—**

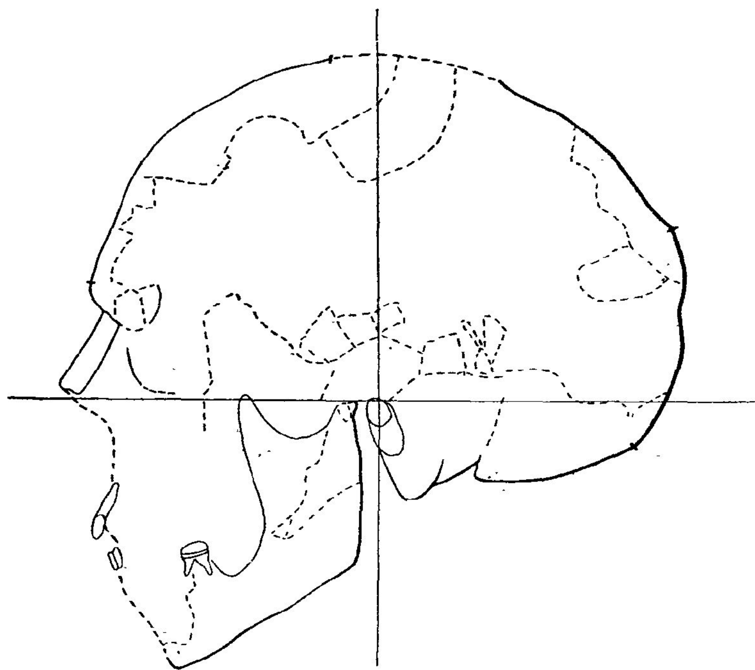


Fig. 3.

Scale 1 : 2.

This skeleton was found close to, but west of skeleton DK 7411B (M. 34) (2) and at a slightly lower level. It lay on its back with the face towards the west. The left thigh was flexed and appears to have passed beneath the right thigh of skeleton DK 7411F (M. 27) (No. 6). The skull with the mandible, the greater portion of the left humerus, radius, ulna and portions of the left femur, a few vertebræ and broken pieces of pubic bones alone were recovered; the rest of the skeleton is

missing. Mixed with the bones of M. 28 were fragments of those apparently of two children of different ages, one being DK 7411A.

The skull is badly smashed and laterally compressed. Viewed from the front, the glabella is well-marked and the superciliary parts of the supra-orbital ridges are well differentiated. Although the left half of the skull is broken, it is clear from the remaining portion that the latter are continuous at the glabella. There is a fracture running from the right supra-orbital foramen across the left eye which has slightly raised the glabella, and as a consequence the nasion looks more depressed than it actually was during life. The right orbit is sub-rectangular and the left missing. The nose is long and narrow with the bridge highly arched and concavo-convex in outline. The lower margins of the pyriform aperture are ridged. The right zygomatic arch is moderately developed, but the left is missing. The face is extremely long, and in spite of a damaged symphysis the total facial height is about 130 m.m.

Viewed from the side, the forehead appears to rise with a somewhat backward inclination until it reaches the bregma, where it is broken by a large fracture which is 65 m.m. at this point, but gradually narrows down into the right temporal fossa. From this point the median sagittal line sweeps downwards and backwards till it reaches the lambda, and then with an uniform curve, at first downwards and backwards, and then downwards and forwards, it passes to the inion. From the inion the curve is continued forwards more abruptly.

Viewed from the top, the skull appears to be very narrow. Its breadth has been considerably diminished by lateral compression and the fracture on the left side of the skull, giving the impression of a much narrower shape than it originally had. The right zygomatic arch, although badly damaged, is visible, but the left is altogether missing.

Viewed from behind, the skull presents a highly developed transverse occipital torus which is continuous with the supra-mastoid crests in front, and the impressions of the muscles of the neck are very strongly marked. The left half of the occipital squama is badly broken. The basilar part of the skull also is damaged. Only the right side of the foramen magnum is left. The right occipital condyle is broken and the left missing. The glenoid fossæ are deep. The palate is highly arched and its depth appears to be greatly enhanced by lateral compression. The right half of the alveolar arch is partially missing. All the teeth have been erupted, but are very much eroded.

The mandible is high and not powerfully built. The mandibular symphysis is considerably damaged. The coronoid process of the mandible is pointed on both sides and the mandibular notch is deep. The mylohyoid ridge is well developed.

As far as can be judged from the broken surface of the skull, there is no sign of closure of any of the ecto-cranial sutures which are well serrated. Taking all these factors into consideration, the skull appears to be that of a male in the prime of life.

(5) *Skeleton DK 7411E (Cat. No. M. 30).*—This was found to the east of skeleton No. DK 7411C (No. 33), lying on the broken shaft of a humerus which in its turn lay on the elephant's tusk. The bones were charred and only a few fragments were recovered.

(6) *Skeleton DK 7411F* (*M. 27*) (*Pl. XXXII a*) (*Figs. 4 and 5 ; Pl. CXLV, Figs. 1-3*).—This skeleton lay on its chest between and under skeletons M. 30,

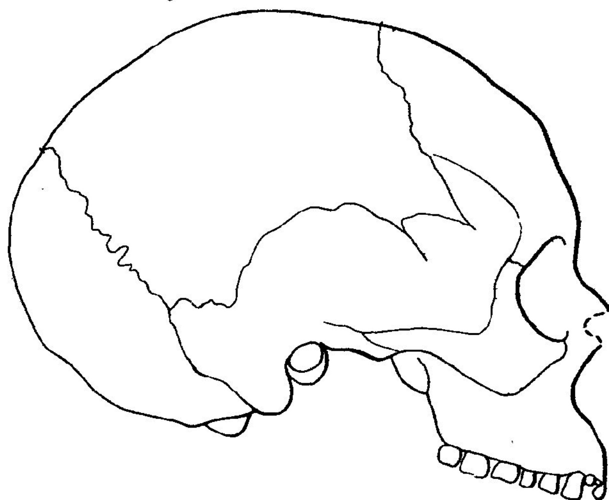


Fig. 4.

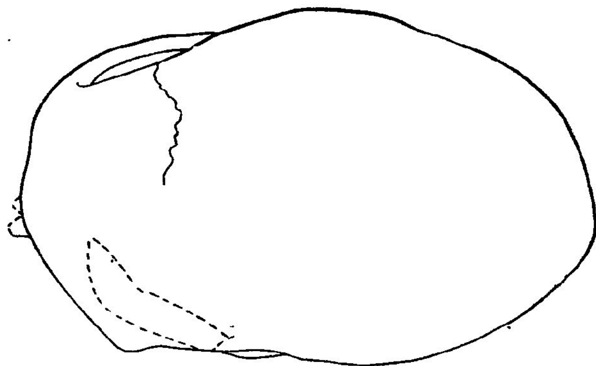


Fig. 5.

and M. 28 (Nos. 4 and 5). The face was turned to the west with the jaw resting on the broader end of the elephant's tusk. The body lay in a moderately

extended position, with the head 2 ft. 2 ins. higher than the feet. This skeleton was in fairly good condition excepting that the lower end of the left foot was missing. Unfortunately, as in M. 28 (No. 4) none of the long bones were complete so that it is impossible to estimate the height when living.

The skull is laterally compressed, the compression being more marked on the left than on the right. There is a large depressed fracture (140 m.m. by 30 m.m.) on the left side, which starts at about 18 m.m. from the bregma and continuing through the left fronto-parietal region reaches the left mastoid process of the temporal bone. This depression extends to the left temporal fossa. Both the left temporal squama and the anterior inferior angle of the left parietal bone are broken into fragments. It is impossible to determine whether this injury was ante-mortem ; if it was received in life it is sufficient to have caused the death of the individual. There are two other smaller fractures on the right temporal bone, one passing upwards and backwards from the porion and the other horizontally from the pars pterica.

Viewed from the front, the glabella is not prominent, and the superciliary parts of the supra-orbital ridges are only slightly differentiated. The squama of the frontal bone is broken by fractures radiating from the right frontal eminence. The orbits are large and elliptical, the right being larger than the left. The nasion is not depressed. The nose is long and narrow and the bridge of the nose high. The lower margins of the nasal aperture are moderately sharp. The zygomatic bones are not prominent. The upper jaw is very narrow, its narrowness being accentuated by the lateral compression of the skull.

Viewed from the side, the forehead rises gradually from the glabella in an uniform curve until it reaches the vertex, which is 41 m.m. behind the bregma, and then sweeps backwards and downwards till it reaches the lambda. From this point the cranial curve moves downwards and forwards to the opisthion.

Viewed from above, the skull presents an ovoid shape, somewhat flattened in the left fronto-parietal and right parieto-occipital regions. Both the frontal and the parietal bones are broken by fractures passing lateralwards from the median sagittal line.

Viewed from the back, a considerable asymmetry is noticeable in the occipital region owing to the lateral compression, and there are fractures in the bone radiating from the inion. The basilar parts of the skull show the continuance of the damage in the foramen magnum which is completely broken. The occipital condyle is missing and the styloid processes broken. The glenoid cavities are very deep and the palate highly arched and narrow ; the height probably being increased by the compression already mentioned. There are thirteen teeth in the sockets of the upper jaw, the three molars on the left side being absent. The crowns of the teeth are slightly eroded, and there are signs of caries in the first molar on the right side.

The sutures on the cranial vault, as far as can be judged, show no sign of closure. They are, however, damaged by the fractures and in many places are indistinguishable from the latter.

The lower jaw like the skull was broken originally into five fragments. After its restoration, it was found to be laterally compressed. The mandible is short but strong, and the chin prominent. The mylohyoid ridges are very strong.

The condyloid process is broken, but the mandibular notch is deep. There are eight teeth left in the sockets, the crowns of which are slightly eroded. This skull appears to be that of an adult male.

(7) *Skeleton No. DK 7411G* (*Cat. No. M. 29*) [*Pl. XXXII* (*b*)].—This was the skeleton of a child found beneath the shorter of the two tusks. The skull lay on its left side in a north to south direction and facing east. It was fully 2 ft. 2 ins. lower than the rest of the body.

The skull was smashed and the mandible broken. Portions of the pelvic bones, a few pieces of the bones of the extremities, and the skull and the mandible were recovered.

The skull is small, and the muscular impressions are not well marked. The forehead is vertical. The metopic suture has completely closed. Though the broken condition of the bones makes it very difficult to speak with certainty, the frontal eminence on the left side appears to be well developed. The root of the nose is not depressed and the bridge is high. The lower margins of the pyriform aperture are sharp. The zygomatic arches are narrow. The palate is well-formed and arched, and there are fourteen teeth in the upper jaw.

The mandible was broken into three fragments, but successfully restored. The posterior part of the right ramus, however, is missing. The chin is well formed. The two permanent canines are just cutting though they are somewhat displaced as a result of the delayed shedding of the temporary canines.

The age of the child appears to have been between twelve and fourteen years.

(8) *Skeleton No. DK 7773* (*Cat. No. M. 31*).—This was the skeleton of a child, possibly a girl judging from the copper bangle found on the wrist of the right hand. The head lay between the feet of skeletons No. DK 7411F and No. DK 7411G (Nos. 4 and 6), and faced to the west. The body was bent, and the legs flexed touching the neck of skeleton No. DK 7829 (No. 9). The head was 1 ft. 1 in. higher than the feet.

The skull was broken, only portions of the cranial vault and the face being left. The lower jaw is present. Viewed from the front, the frontal eminence on the right side (the left being missing) is well developed, but the supra-orbital ridges are not well marked. The nasal root is not depressed and the nasal bones are fairly prominent. The right orbit is elliptical, but the left is almost circular. The zygomatic bones are not strong. There is a little amount of alveolar prognathism. When the lower jaw is fitted in position the face appears to be oval in outline.

Although the left side is broken the skull appears to be dolicho-cranial when viewed from above.

Viewed from below the palate appears to be well vaulted. The right glenoid fossa is moderately deep, the left is missing, and the jugular fossa of the petrous part of the right temporal bone is pierced by two apertures.

Behind the left upper second molar there is a developing third molar tooth.

The lower jaw was broken in three parts, the symphysis being separated from the body on either side. These parts were carefully joined together by a solution of celluloid in acetone. The chin is well-formed, but the mandible is

very small. There are altogether ten teeth present, the two median incisors being missing. Two teeth show signs of caries.

(9) *Skeleton DK 7829A* (*Cat. No. M. 32*) (*Fig. 6 and Pl. CXLV, 7–8*).—This was found south-east of the skeleton just described. The skull was severed

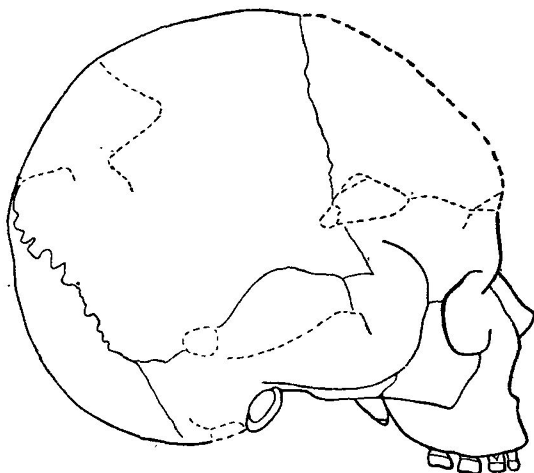


Fig. 6.

from the body and lay at some distance from it. A few of the vertebræ were attached to the skull and the general appearance of the skeleton suggests that the victim was probably beheaded. The body was found lying on its back with the legs crossed and the left hand upon the chest.

The skull is laterally compressed, the compression on the right side being in the frontal and on the left in the fronto-parietal regions encroaching upon the squama of the left temporal. Seen from the front the skull presents a more or less oval shape. There is a large fracture about 20 m.m. above the nasion passing horizontally from one side of the forehead to the other. Three smaller fractures pass longitudinally upwards from this with the result that the squama of the frontal bone is broken into many parts.

The supra-orbital ridges and the glabella are not strongly marked. The right orbit is elliptical, but the left has a more circular appearance. The nasal bridge is high and the lower margins of the pyriform aperture are only moderately sharp. As a result probably of the lateral compression, the left zygomatic bone is a little advanced forwards. The left mastoid is small and the right is missing.

Viewed from the side, the skull appears to be well vaulted with a gradual and uniform curve. Viewed from above, it appears to be rather pear-shaped and the lateral compression of the frontal squama becomes quite distinct. The two parietal tuberosities are very prominent.

Seen from below the palate is deep. The basilar part of the occipital bone has not fused with the basilar part of the sphenoid. The foramen magnum is long and narrow.

There are twelve teeth in the upper jaw. The permanent left upper canine is still above the alveolar margin and two molars are seen to be just cutting.

The mandible is small, but the chin is well developed. The mandibular notch is moderately deep and the mylohyoid ridge well marked. Two teeth in the lower jaw and one in the upper show signs of caries. The angle of the mandible is 126 degrees.

Judged from the condition of the skull and the state of the dentition, this skeleton appears to be that of a child, between twelve and fourteen years of age.

Skeleton DK 5957 (Cat. No. M. 36).—This skeleton was found in loose débris in Block 7, house I, room 19, at the level 8 ft. below datum. It is of uncertain date. Only the skull was recoverable and this was in a very fragmentary condition.

Skeleton DK 6205, 6206 (Cat. No. M. 40) (Fig. 7 and Pl. CXLV, 6).—This

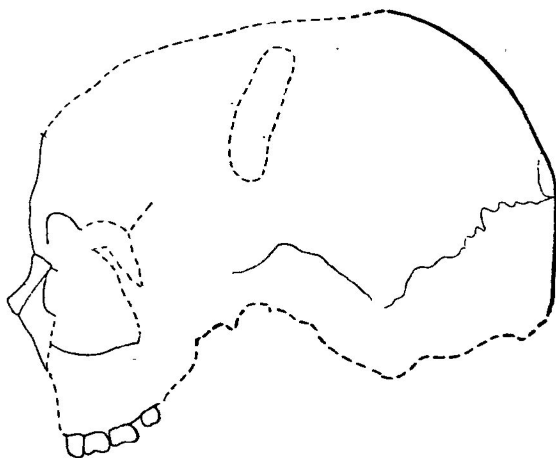


Fig. 7.

skeleton was found in the north-western corner of the Western Court of Block 1, resting on the left side. Owing to its bad condition, only a few broken pieces of bone were recovered.

From the broken fragments of the skull it is seen that the supra-orbital ridges are not marked, the left eye is large and squarish in outline. The nasal bridge is high, and in the upper jaw the last molar is seen to be just cutting.

The skull is that of an adult, and possibly that of a female.

The following skeletons were found on the staircase leading down into the well-room 42 of Block 8A (Pls. XX ; XLIII, b, c).

Skeleton No. DK 11063 (Cat. No. M. 41).—Only the cranial vault containing portions of the frontal, the two parietals and the upper part of the right temporal was found.

Skeleton No. DK 11243 (Cat. No. M. 42).—A crushed and broken piece of the cranial vault was all that was recovered.

Skeleton No. DK 11425 (Cat. No. M. 43).—A portion of the cranial vault containing parts of the two parietals and the squama of the occipital bone was found.

Skeleton No. DK 11453 (Cat. No. M. 44).—A crushed mass of bones of the cranial vault was found. These bones are rather thick and the impressions, particularly of the muscles of the neck, are very well marked. The right mastoid process is well developed. The teeth are considerably eroded. This skeleton appears to be that of an adult male.

* * * * * * *

General Characters of the Skulls.

Mention has already been made of the paucity of well preserved skulls in this collection, though the total number of individuals represented is fairly large. Of this small number, two are those of adult males, two of children aged between ten and fourteen years, and one of a female (M. 40). Of this last skull, only a few measurements could be taken.

The Dimensions and Shapes of the Skulls.

In Tables I-II, at the end of this chapter, are given the absolute measurements and indices of these skulls. It will be observed that the mean cranial length of the two adult male skulls is 191·5, the cranial breadth 135·0 and the percentage of proportions between the two 70·5. The mean auricular height is 121·5 and the length-auricular height index 63·4. The corresponding figures for the skulls previously unearthed at Mohenjo-daro[1] are 197, 130 and 66·02; 122 and 62·03 for Group A and 175·25, 129·5 and 71·4 ; 115 and 64·3 for the male skulls belonging to Group B. In the Nāl skull[2] the maximum cranial length and breadth are 188·5 and 132·0 respectively, and the percentage of proportions between the two 70·0. The auricular height is 120 and the length-auricular index 63·66. From a comparison of these figures it is clear that the present series of large and high vaulted skulls from Mohenjo-daro more closely resemble those of Group A than the others found there, especially No. M. 28. Other crania with which comparison may be made are the ancient Sumerian skulls found at Kish and described by Dr. Dudley Buxton.[3] The mean cranial length and breadth of the four dolichocephalic skulls from that site are 191·5 and 130·7 respectively, and the cranial index 68·27. The auricular height is not given, but the distance from the basion to bregma is 132·3 (a measurement which could not be taken in the skulls from Mohenjo-daro under consideration owing to the

[1] Sewell and Guha, *op. cit.*, pp. 645-646.

[2] Sewell and Guha, *op. cit.*, pp. 69 and 70.

[3] L. H. Dudley Buxton, Human Remains excavated at Kish, in S. Langdon's ***Excavations at Kish***, vol. I (1924), p. 118.

broken condition of the foramen magnum) indicating a high vault of the cranium. These figures are not very different, though the skulls from Mohenjo-daro appear to be slightly broader.

Keith[1] has described a further series of ancient Sumerian skulls from al-'Ubaid and Ur excavated by Dr. Leonard Woolley. The mean cranial length and breadth of these skulls are 192·8 and 140·1, and 193·6 and 135, respectively, and the mean cranial indices of the two series are 72·6 and 69·8. The mean auricular heights are 119·6 and 116·3 for the two series. Keith[2] has mentioned a series of predynastic Egyptian skulls from al-Kawāmil in Upper Egypt, described by Dr. Fouquet in Vol. II of de Morgan's *Sur les Origines de l'Égypte.* The mean cranial length and breadth of this series are 188 m.m. and 132·4, and the percentage of proportions between the two 73·7. All these skulls appear, therefore, to be very close in size and shape.

Cranial Capacity.

No direct measurement of the cranial capacity was possible as the impacted earth could not be removed from inside the skull cavities without serious injury to the bones. Recourse was, therefore, had to the Lee-Pearson general formula (No. 10),[3] and the cranial capacities of the two adult male skulls were calculated by taking into consideration their maximum length, breadth and auricular height in accordance with this formula. The values thus derived are 1463·98 for M. 27 and 1523·79 for M. 28, with a mean of 1493·8 for the two skulls. The corresponding figure for the Nāl[4] skull is 1449 c.c., and 1522·85 c.c. is the mean of the two Mohenjo-daro skulls belonging to Group A. The mean capacity of the three Kish skulls of massive type is 1417[5] and of the five al-'Ubaid skulls is 1498·5.[6] The mean value obtained by Dr. Morant for the male Kawāmil skulls is 1476 c.c.[7]

In cranial capacity, therefore, the present series of skulls from Mohenjo-daro are somewhat smaller than those of Group A, but closely resemble the ancient Sumerian skulls from al-'Ubaid and the Kawāmil skulls from Upper Egypt. They are bigger than the Mohenjo-daro Group B, Nāl and Kish skulls, and the average modern European.

The forehead is broad, the least and the greatest widths being 96·5 m.m. and 111 m.m., respectively, with a difference of 14·5 m.m. In Mohenjo-daro Group A the figures are 95 m.m. and 115 m.m., and in Group B, 94 m.m. and 111·5 m.m., respectively. In the Nāl skull, the least frontal breadth is 93,

[1] Sir Arthur Keith, Report on the Human Remains; in Hall and Woolley's *Al-'Ubaid*, pp. 214-40.

[2] *Ibid*, pp. 222-25.

[3] Alice Lee and Karl Pearson, *Phil. Trans. Roy. Soc.* Series A, vol. 196, p. 247.

[4] *Op. cit.*, pp. 64-65.

[5] *Op. cit.*, p. 118.

[6] Keith, *op. cit.*, p. 225.

[7] *Ibid.*

the greatest width not being measured owing to the broken condition of the left portion of the frontal bone. In the present series also, the value of the greatest breadth of the frontal bones has probably been lessened by the lateral compression of the skulls. Leaving this measurement, therefore, out of consideration, the forehead appears to be slightly wider in the present series, but closely resembles the ancient Sumerian skulls from al-'Ubaid and the predynastic Kawāmil skulls, judging by Sir Arthur Keith's remarks.[1]

From a comparison of the figures given above, it is evident that so far as the cranial portions are concerned the present series of skulls from Mohenjo-daro agree in size and shape with the al-'Ubaid and the massive type of Kish skulls described by Keith and Buxton, and also with the predynastic Kawāmil skulls from Upper Egypt. *They are similar to Mohenjo-daro Group A skulls, but* slightly smaller. There is thus hardly any doubt that, judged by their cranial dimensions and shape, all the skulls of these series belonged to a large-headed dolichocephalic race, the biggest and most massive being those of the Mohenjo-daro Group A.

Facial Characters.

From the nature of the fractures and injuries in various parts of the face, details of which are given in the general descriptions of the skeletons, it will have become apparent that strict accuracy cannot be guaranteed in every measurement ; in some cases the total values had to be calculated from the unbroken half of the face. No efforts, however, were spared to determine them with as much accuracy as was possible under the circumstances.

The maximum width across the zygomatic bones is only 124 m.m. against 127 m.m. and 124 m.m. respectively of Groups A and B from Mohenjo-daro, and 127·6 m.m. and 132·3 m.m. of the ancient Sumerian skulls from al-'Ubaid and Ur. In the skulls from Kish it is 131 m.m., and in the predynastic Egyptian skulls of al-Kawāmil 132 m.m.

The breadth of the nasal aperture—one of the component elements of the facial width—is also very low, the mean value being 23 m.m. against 24·3 m.m. in the Kawāmil, 25·7 m.m. in the al-'Ubaid, and 26·6 m.m. in the Ur skulls. The mean bimaxillary width of the two Mohenjo-daro skulls is 91·5 m.m., against 91·5 m.m. and 100·3 m.m. respectively in the al-'Ubaid and Ur skulls.

It is not improbable that the narrow bizygomatic breadth in the Mohenjo-daro skulls may have been due to post-mortem flattening as a result of pressure, but as the low values of some of its component parts, like the width of the pyriform aperture, indicate, the ancient people of Mohenjo-daro as represented by these skulls appear to have had narrower faces than the people of Mesopotamia and Egypt. If this view be correct, and if the association of wide zygoma with long heads is to be regarded as a mark of primitiveness, it will then be not altogether unreasonable to infer that the more harmonic face of the ancient Mohenjo-daro men was the result of its being subjected to the modifying influence of civilization for a much longer period.

[1] Keith, *op. cit.*, p. 224.

The mean total length of the face in the two skulls is 126 m.m. In the Ur skulls it is 128 m.m., and in the al-'Ubaid skulls the estimated figure is 122·23 m.m. The nasal part of this total has a mean value of 53·5 m.m. against 53·3 in the Kāwāmil, 54 in the al-'Ubaid, and 54·6 m.m. in the Ur skulls. In other words, in the skulls from Mohenjo-daro the nasal portion of the face is 42·4 p.c. of its total length against 44 p.c. in the ancient Sumerians, showing that both were long-nosed people.

The lower or maxillary part has a mean length of 72·5 m.m., of which the symphysical height or the depth of the lower jaw is 34·5 m.m. against 33·6 m.m. and 32·5 m.m. respectively in the skulls of Groups A and B. In the ancient Sumerian skulls of al-'Ubaid, Ur and Kish, the corresponding values are 35·7 m.m., 34·5 m.m., and 32 m.m. respectively. The depth of chin, therefore, in the present series of skulls from Mohenjo-daro, though less than in those of al-'Ubaid, has the same value as in the skulls from Ur and higher than those of the other skulls compared, and not much below the mean of the modern Englishman (35 m.m.), as given by Keith.[1] It is not improbable that in this respect the skulls of Group A would have shown an equally high value, but for the extreme attrition of the teeth of skull M. 11[2] which must account for the reduction of the depth of the lower jaw of this skull, a very massive and broad jaw otherwise.

The proportion of the upper to the total length of the face is 60·7 p.c. in the present skulls, against 59 p.c. and 60 p.c. in the Sumerian skulls of al-'Ubaid and Ur. In skull No. 11 of Group A (in which alone these measurements could be taken), the proportion is also 60 p.c.

Mention has already been made that the men represented in these two skulls were long and narrow-nosed. The mean nasal index is 42·98, against 46·9 in the Nāl and 48·2 and 51·06 respectively in the Mohenjo-daro Group B and A skulls. In the Kawāmil skulls the nasal index is 45·6, in the Kish 44·4, and in the Ur and al-'Ubaid skulls 48·7 and 51·3 respectively. The mean inter-orbital breadth (maxillo-frontal) is only 17·5, and the nasal bridge is very narrow and well-raised. The nasal sill is very sharp, and marked by a well defined ridge. Compared, therefore, to the other groups mentioned above, the nose in the present series of skulls from Mohenjo-daro appears to be much narrower.

The orbits are very high, with a mean height of 34·5 against 33·6 in the al-'Ubaid and 33·2 m.m. in the Kawāmil skulls. In the skulls of the Mohenjo-daro Groups A and B they are 31·25 m.m. and 32·8 m.m., respectively. In the Nāl skull the orbital height is 33 m.m., but in the Ur skulls measured by Keith it is as high as 36 m.m. The orbital breadth is 42 m.m., against 40 m.m. in the al-'Ubaid, 39·2 m.m. in the Kawāmil, and 39 m.m. in the Ur skulls. In the Nāl skull it is 40 m.m., but in those of Mohenjo-daro Groups A and B, it is much less, being respectively 37 m.m. and 37·3 m.m. only. The orbits in the skulls of this series from Mohenjo-daro are thus higher and broader in comparison.

[1] Keith, *Ur Excavations*, p. 228.

[2] Sewell and Guha, *op. cit.*, p. 628.

Facial Projections.

In the preceding paragraphs the measurements of the face as seen from the front have been studied and compared. We turn now to the characters of the face in true profile. Sir Arthur Keith[1] has devised a method of accurately recording the facial projections from a vertical plane passing through the centre of the auditory meatus at right angles to the Frankfort plane. In Table III are given the measurements of the facial projections taken according to Keith's method. The projection of the glabella or the pre-auricular length of the skulls M. 27 and M. 28, as given in column A, is 92·5 m.m. against 101 m.m., the mean of the post-auricular parts of the same skulls, and forming 48·8 per cent. of the total lengths. In Mohenjo-daro Group A the pre-auricular parts form 45 per cent. of the total cranial length, and in the old Sumerian skulls of al-'Ubaid the proportion is 49·6 per cent. In other words, in the present series the part behind the trans-auricular axis is 51·2 per cent. of the entire skull, against 55 per cent. in Mohenjo-daro Group A and 50·4 per cent. in the al-'Ubaid skulls. These facts bring out clearly the enormous growth of these skulls (especially of Group A) in the post-auricular direction, or that portion which is attached to the neck.

The importance of recording the exact position of the external auditory meatus in the total length of the skull is, therefore, apparent. Col. R. B. Seymour Sewell and I have devised a method of accurately determining the meatal position by dropping a perpendicular from the centre of the ear-hole to the calvarial base line, the skull being fixed in the Frankfort plane. The mean meatal position index thus determined in skulls M. 27 and M. 28 is 51·7, against 48·24 in Group A. In 5 male Veddah skulls it was found to be 51·43, in 20 male Tasmanian skulls 51·49, in 20 male Australians 53·01, in 3 male Aditanallur skulls it was 54·06,[2] and in 30 male Burmese 55·5.[3]

These figures clearly show that the skulls of Mohenjo-daro Group A have the most forward position of the auditory meatus and the brachycephalic Burmese the furthest back. We have no other data to compare with, but it may safely be surmised that if similar measurements of the ancient Sumerian skulls of al-'Ubaid were available they would not be far different.

In column G the projection of the nasion is given. The mean of the two skulls is 90 m.m., showing that the glabella in these skulls projects 2·5 m.m. in front of the nasal root. In skull No. M. 6 of Group B, the projection of the glabella in front of the nasion is the same, but in the two skulls M. 2 and M. 11 of Group A the projection is as high as 7·5 m.m.[4] In this respect skull M. 28 approaches the skulls of Group A with a glabellar projection of 6 m.m. In the seven male skulls from al-'Ubaid the projection is 5·4 m.m., but in the skulls from Ur it is only 2·1 m.m.[5] Other figures available for comparison are the values obtained

[1] Keith, *op. cit.*, pp. 231-34.

[2] Sewell and Guha, *op. cit.*, p. 607.

[3] P. C. Basu, A Comparative Study of the Burmese Crania; *Trans. Bose Institute*, vol. VII, p. 274. Calcutta, 1933.

[4] Sewell and Guha, *op. cit.*, p. 648.

[5] Keith, *op. cit.*, p. 231.

by us in the Nāga skulls recovered by the Triangular Expedition, and twelve male Tasmanian skulls whose exact dioptographic tracings are given by Berry and Robertson, in which the mean projections are 6·5 m.m. and 6·7 m.m. respectively.[1] From the above measurements it is clear that in skull M. 28, and in Nos. M. 2 and M. 11 from Mohenjo-daro described previously, there is a considerable accumulation of bone at the glabella, resulting in a very deep sub-glabellar notch. Their close similarity with Australoid skulls, *e.g.*, Nāga Group II and Tasmanian skulls, in the modelling of the lower forehead is therefore very striking.

The projection of the lateral orbital margin, as given in column E, is 69 m.m. for M. 27. The mean value in M. 2 and M. 11 is slightly higher, *viz.*, 69·75 m.m. In the skulls from Ur it is 68·4 m.m. and in those from al-'Ubaid 70·6 m.m.

In M. 27, the projection of the tip of the nose, as given in column Y is 100 m.m., *i.e.*, 31 m.m., in excess of the lateral orbital margin from the meatal plane. In M. 6 of Group B, the nasal projection is 34·5 m.m. In the Sumerian skull, Keith[2] finds this advance to be as high as 38 m.m. and in the British and Punjābi skulls 31 m.m.

This projection of the nose can be studied in another way, namely, by measuring the height of the dorsum of the nose from the inferior orbital margins, as given in column X. In M. 27, it is 21 m.m., against 24 m.m. in M. 6.

In the al-'Ubaid skulls the orbito-nasal height is 26 m.m., and in the skulls from Ur 28 m.m. In the ancient Egyptian skulls it is 22·5 m.m. From this it is clear that while not approaching the remarkable development of the Sumerian nose the Mohenjo-daro skulls are nearer to the British and the ancient Egyptian types.

Another character which is of considerable significance is the projection of the lateral nasal margin from the trans-auricular plane. In M. 27 it is 89 m.m. In the skulls from Ur the distance is the same, but in the al-'Ubaid skulls it is slightly higher, namely, 91·6 m.m. The difference between this distance and that of the lower malo-maxillary point from the meatal plane is 20 m.m. in the Mohenjo-daro skull, against 21·4 m.m. and 24·4 m.m. in the skulls from al-'Ubaid and Ur respectively,[3] showing distinctly that as in the latter there was no retrocession of the lateral nasal walls in the ancient Indus Valley people.

The projection of the cheeks can also be determined by measuring the distance of the lower malo-maxillary point from the trans-auricular axis. In M. 27, the distance measured is 69 m.m., against 70·2 m.m. in the al-'Ubaid skulls, 64·6 m.m. in those from Ur, and 68 m.m. in the modern English skulls. In the modern Punjāb skulls measured by Keith,[4] the value given is 70 m.m.

The projection of the cheeks can also be determined by measuring the forward development of the zygomatic arches which support the cheek bones. These measurements are given in Table IV. A glance at these figures will show that there is a considerable difference between the mean values in Group A and in

[1] Guha and Basu, *op. cit.*, p. 66.

[2] Keith, J. A. I., *op. cit.*, p. 168.

[3] *Ibid*, p. 231.

[4] Sir Arthur Keith, *Ur. Excavations*, p. 235.

M. 27, specially in the greater advance in the former of the "masseterio" point and the greater depth of the zygomatic bone. In the al-'Ubaid skulls also, the cheeks are slightly more forward and of greater depth. In none of the series, however, is the forward growth of the cheek-bones comparable to that in the typical Mongoloid skull.

The projections of the upper and lower alveolar points from the transmeatal plane, as given in columns J. K. L. in Table III, provide us with the best method of determining the degree of prognathism, by calculating the amounts of these projections beyond the root of the nose. In M. 27, the sub-nasal prognathism is 8 m.m. and the upper alveolar 13. In M. 11 of Group A the corresponding figures are 6 m.m. and 7·5 m.m. In the al-'Ubaid skulls these figures are 8 and 7, respectively. In ten modern British and five Punjābi skulls the jaws hardly protrude beyond the nasion. In 40 typical Melanesian skulls the sub-nasal prognathism was found to be 10·2 m.m. and the upper alveolar 14·0 m.m.[1]

Teeth.

As in the other skulls from Mohenjo-daro, the teeth are very much worn and the dentine freely exposed. The marked wear of the teeth associated with most ancient skulls is probably due, as pointed out by Keith and noticed by us also, to the admixture of dirt in the food. From an examination of the teeth present and the degree of the wear, it is certain that the upper and lower incisors did not overlap but met in an "edge to edge" bite during life.

In Table V are given the measurements of the molar teeth of both the jaws. In M. 27 the teeth are better preserved and their values comparable to those of the Nāl skull. The teeth in M. 28 are unfortunately very much worn down and the figures given are probably somewhat less than the real size indicated before the process of attrition developed to the present extent.

Racial Affinities.

From the foregoing accounts of the comparative characters of the skulls, it will have become clear that the men represented by them belonged to a big-brained, long-headed race with high cranial vaults. Two at least, *viz.*, skulls M. 28 and M. 34, are racially identical with the type previously found at Mohenjo-daro and designated by us Group A.[2] The rest probably are more akin to Group B[3] and the Nāl skull. The chief characteristics of the first type of skull are its massive size, prominent supra-orbital ridges with a large accumulation of bone at the glabella, a deep sub-glabellar notch, and an enormous development in the post-auricular direction.

In his review of "Mohenjo-daro and the Indus Civilization", Keith,[4] while accepting our differentiation of this type from the main body of dolichocranial skulls from Mohenjo-daro, has demurred as to the correctness of applying the term "Proto-Australoid" to this race on the ground of their affinities to the ancient Sumerian and the Caucasian types of Europe. While it is undeniable

[1] Keith, *op. cit.*

[2] *Op. cit.*, pp. 638-42.

[3] *Op. cit.*, pp. 642-43.

[4] *Illust. London News*, Dec. 19, 1931, p. 1002.

that the mere possession of "stout" supra-orbital ridges does not indicate Australoid affinities, the formation of the lower forehead in the Mohenjo-daro A skull is suggestive of the Australoid and Neanderthaloid races, as will be seen in Fig. 2 (p. 616), in which the dioptographic tracing of a Papuan skull from our collection in the Indian Museum is superimposed on that of M. 34 (the remaining portion of this skull being missing), the nasions in both exactly coinciding. Furthermore, the earlier Mohenjo-daro skulls are broad nosed (*vide* fig. 25 on page 625 of the second volume of *Mohenjo-daro and the Indus Civilization*, which gives the front view of M. 11), and both these and the al-'Ubaid skulls definitely show a Chamaerine index—the mean values in the two series being 51·06 and 49·2, respectively. Drs. Heinz F. Friederichs and Heinrich W. Muller in their recent paper on "Die Rassenelemente im Indus—Tal Während des 4 and 3, vorchristlichen Jahrtau, sends und ihre Verbreitung"[1] have accepted our conclusions, though preferring to give it the name "Weddoid", after Eickstedt. The expression, however, is unfortunate, as the Veddah skulls have neither its size nor massiveness. In our report on these skulls, both Col. Sewell and I[2] considered all these points and in the comparative table given there, the mean cranial capacity of the Veddah skulls quoted from Sarasin was stated to be only 1278 c.c., against 1490 c.c. of the Mohenjo-daro A and 1498·5 c.c. of the al-'Ubaid skulls. Recently one of us (B. G.) had the chance of examining the al-'Ubaid and the Kish crania in the collections of the Royal College of Surgeons and the Anatomy Department of the Oxford University, as well as the Long Barrow skulls of England. The presence of a well developed glabella and strong supra-orbital ridges in these skulls, which are in other respects and also closely allied to the Mohenjo-daro A skulls, has convinced us of the soundness of Keith's contention. In spite therefore of the marked prominence of the supra-orbital ridges, these skulls must really be designated as 'Caucasic', to use Keith's none too happy expression.

Reference has already been made to the enormous projection of the occipital regions in these skulls. In the crania from Mohenjo-daro under discussion, the post-auricular parts form 51·2 per cent., and in Mohenjo-daro A 55 per cent. of the total cranium. Keith[3] mentions the same characteristic in the al-'Ubaid skulls, where the projection of the post-auricular portion to the total skull is 50·4 per cent. This trait is, however, absent in the ancient Egyptian (except probably Kawāmil) and the English Long Barrow skulls. It is not found either in the Negroes or in the modern inhabitants of the Punjāb. In the ten male Punjābi skulls examined by Keith, the percentage of the post auricular parts to the whole skull was found to be only 47.

This backward cranial growth is really the result of the forward position of the auditory meatus. In Plate CXLVI, fig. 1, the composite profile view of M. 27 and M. 28 is superimposed on that of M. 2 and 11, and M. 6, belonging respectively to Mohenjo-daro A and B Groups—the nasion in the three coinciding. It will be seen from this figure that the position of the ear-hole is most forward in Mohenjo-daro A and least in Mohenjo-daro B, with M. 27 and M. 28

[1] *Anthropos*, Band XXVIII, pp. 383-406, 1933, Wien.

[2] *Op. cit.*, p. 641.

[3] *Op. cit.*, p. 232.

occupying an intermediate position. The mean meatal position index for the former is 48·24 ; for M. 27 and M. 28 it is 51·7, and for Mohenjo-daro B 52·34. The placing of the meatus in this manner in the first two is due not to recession only but to the complete rotation of the skull forwards.

The development of the post-auricular parts distinguishes M. 28 and the Mohenjo-daro A skulls not only from Mohenjo-daro B, but also from the present inhabitants of the Indus Valley, the latter two being closely similar in this respect. Keith[1] in his aforesaid review makes the suggestion that Mohenjo-daro A represented the "ruling class", with M. 2 as their probable chief. It may seriously be doubted, however, whether the race designated as Mohenjo-daro A could really have belonged to the ruling class, in spite of the size and massiveness of their heads. In Plate CXLVI, fig. 2, the composite profile view of Mohenjo-daro A is superimposed on those of Mohenjo-daro B and skull No. M. 28—the centre of the auditory meatus coinciding in the three. It will be seen from this figure that in Mohenjo-daro A skulls the occipital parts are pushed farthest backwards and the frontal portions are the least developed, *i.e.*, the regions associated with all the higher intellectual activities. This tremendous occipital growth giving support to the powerful neck muscles indicates very sturdy, strong individuals. In Mohenjo-daro B skulls, on the other hand, the lack of great physical strength seems to have been compensated by the possession of a superior intellect as judged from the development of the frontal regions. If, therefore, brain rather than mere brawn be the real test of a ruler, the role of leadership must be assigned to the latter and not to the Mohenjo-daro A people.

Keith's opinion, however, that this type Group B belongs essentially to the same race as that now living in the Indus Valley appears to be undeniable and is amply borne out by facts. The present collection, like the previous one, discloses this race in the majority of the remains, with the exception of M. 34 and possibly also M. 28, which in form and size is nearer to Mohenjo-daro A type. The presence of a high-pitched, narrow nose in M. 28, instead of the broad, flat nose of M. 11 and other Mohenjo-daro A skulls, may not improbably indicate, if anything, that both the races had been mixing their blood for a considerable time and individuals possessing different combinations of characters were not uncommon in that city.

We have retained the term "Mediterranean" as descriptive of the majority type because of its general acceptance and association with the culture with which the civilization of the Indus Valley had so much in common until a more acceptable term is put forward.

In conclusion, we wish to record our thanks to the Director General of Archæology and Dr. Ernest Mackay for sending us the skulls for study and to Lt.-Col. R. B. Seymour Sewell, Director of the Zoological Survey of India, for valuable advice and suggestions during the preparation of this report. Our thanks are due to Messrs. D. N. Baghchi, R. C. Baghchi and S. C. Mondal, artists of the Zoological Survey of India, for the drawings and photographs of the skulls published in this report, and also to Mr. H. Bose, M.Sc., the Laboratory Assistant, and Messrs. Panchcourie Chakravarti, Achutya K. Mitra and Bajra K. Chatterjee for valuable assistance.

[1] *Op. cit.*, p. 1002.

TABLE I.—Measurements.

Skull Nos.	M. 27.	M. 28.	Mean of M. 27 & M. 28.	M. 29.	M. 31.	M. 32.	M. 40.
Sex.	Adult-Male.	Adult-Male.		Child.	Child.	Child.	Adult-Female.
Measurements.							
Skull.							
1 Maximum Cranial length . .	187	196	191·50	..	..	166	180
2 Maximum Cranial breadth .	136	134	135·00	..	..	122	..
3 Cranial height—							
(a) Auricular height . .	119	124	121·50	..	116	124	..
(b) Basilo-bregmatic . .	..	..	..	..	..	134	..
4 Cranial capacity . . .	..	..	..	..	..	..	..
5 Least Frontal breadth . . .	95	98	96·50	..	..	..	..
6 Greatest Frontal breadth .	110?	112?	111·00?	..	..	88	..
7 Bimastoid breadth . . .	91	101	96·00	..	..	..	..
8 Bizygomatic breadth . .	122?	126	124·00?	..	..	..	..
9 Nasion—Basion line . .	..	..	..	..	..	93	..
10 Prosthion—Basion line . .	..	..	..	..	..	85	..
11 Nasion—Gnathion line . .	124	128	126·00	..	..	..	..
12 Nasion—Prosthion line . .	76	77	76·50	..	53	58	..
13 Nasal length	52	55	53·50	42	41	44	..
14 Nasal breadth	22	24	23·00	20	21	21	..
15 Interorbital breadth (Maxl-Front.).	17	18	17·50	..	17	18	22
16 Orbital breadth (from Dacryon)	(R) 42 (L) 45	(R) 42 ..	(R)42·00 ..	.. ..	(R)36 ..	(R)35 ..	.. (L)38
17 Orbital height	(R) 38 (L) 35	(R) 31? ..	(R)34·50? ..	.. ..	(R)30 ..	(R)31 ..	.. (L)36
18 Maxillo—Alveolar breadth .	59	..	..	57	53	56	..
19 Maxillo—Alveolar length .	52	..	..	41	41	44	..
20 Measurements of the bony Palate—							
(a) Palatal length . . .	51?	..	..	35	36	37	..
(b) Palatal breadth . .	35?	..	..	32	27	32	..
21 Occipital Foramen—							
(a) length	..	..	..	..	..	38	..
(b) breadth . . .	..	..	..	..	..	25	..
22 Sagittal Cranial arc . .	410	396	403·00	..	..	358	..

TABLE I—*contd.*

Skull Nos.	M. 27.	M. 28.		M. 29.	M. 31.	M. 32.	M. 40.
Sex.	Adult-Male.	Adult-Male.	Mean of M. 27 & M. 28.	Child.	Child.	Child.	Adult-Female.
23 Transverse Cranial arc . .	308	..	..	..	..	286	..
24 Horizontal circumference (maximum).	507	520	513·50	..	..	441	..
25 Biauricular breadth . .	113	118	115·50	..	..	106	..
26 Outer Biorbital breadth . .	102	106	104·00	..	85	87	..
27 Inner Biorbital breadth . .	95	100	97·50	..	77	77	..
28 Bimaxillary breadh . .	89	94?	91·50?	78	73	78	..
29 Height of Palate . . .	..	..	..	..	..	..	..
30 Palatal depth . . .	22	..	..	..	..	..	..
31 Greatest Occipital breadth .	108?	..	..	..	..	115	..
32 Biorbital Nasal arc . .	110	116	113·00	..	87	89	..
33 Frontal arc	145	130	137·50	..	120	..	120
34 Parietal arc	126	146	136·00	..	..	..	125
35 Occipital arc	138	120	129·00	..	..	..	..
36 Frontal chord (Nasion-Bregma)	131	116	123·50	..	116	..	114
37 Parietal chord . . .	117	134	125·50	..	..	..	112
38 Occipital chord . . .	107	97	102·00	..	..	..	..
39 Bimalar breadth . . .	108	..	..	..	..	86	..
Mandible.							
40 Bigonial breadth . . .	57?	82?	69·50?	..	68	61	..
41 Height of Ramus . . .	69	71	70·00	..	46	51	..
42 Breadth of Ramus—							
(*a*) maximum . . .	43	42	42·50	..	33	39	..
(*b*) minimum . . .	35	34	34·50	..	27	31	..
43 Symphyseal height. . .	32	37	34·50	..	27	26	..
44 Mandibular length . . .	..	..	..	..	61	71	..
45 Mandibular angle . . .	133°	134°	133·5°	..	129°	134°	..
46 Bicondylar breadth . .	107	107	107·00	..	82	75	..
47 Height of the body of the mandible—							
(*a*) right side . . .	28	..	..	..	21	23	..
(*b*) left side . . .	27	..	..	..	20	23	..

TABLE I—*concld.*

Skull Nos.	M. 27.	M. 28.	Mean of M. 27 & M. 28.
Sex.	Adult-Male.	Adult-Male.	
MEASUREMENTS ON THE CRANIOGRAM.			
1 Nasion—Inion line (Calvarial Base line) .	178	186	182·00
2 Calvarial height	104	113	108·50
3 Lambda Calvarial height	59·5	71	65·25
4 Bregma position line	93	104	98·50
5 Nasion to foot of Bregma Perpendicular .	52	51	51·50
6 Nasion to foot of Meatal Perpendicular .	93	95	94·00
7 Occipital Inclination Angle . . .	22·5°	23°	22·75°
8 Facial Profile Angle	82·5°	87°	84·75°
9 Calvarial Base Angle	8·5°	15°	11·75°

TABLE II.—INDICES.

Skull Nos.	M. 27.	M. 28.	Mean of M. 27 & M. 28.	M. 29.	M. 31.	M. 32.	M. 40.
Sex.	Adult-Male.	Adult-Male.		Child.	Child.	Child.	Adult-Female.
Indices of the Cranium.							
1 Length—Breadth Index . .	72·73	68·37	70·55	..	..	73·49	..
2 Length—Height Index . .	..	..	..	..	..	80·72	..
3 Length—Auricular Height Index	63·64	63·27	63·46	..	..	74·70	..
4 Breadth—Height Index . .	..	..	..	..	..	109·84	..
5 *Breadth—Auricular Height Index.*	*87·50*	*92·54*	*90·02*	..	..	*101·64*	..
6 Calvarial Height Index . .	58·43	60·75	59·59	..	..	..	..
7 Bregma Position Index . .	29·21	27·42	28·32	..	..	..	..
8 Sagittal Cranial Curvature Index	43·41	46·97	45·19	..	..	..	..
9 Transverse Cranial Curvature Index.	36·69	..	..	..	..	37·06	..
10 Transverse Fronto-Parietal Index.	69·85	73·13	71·49	..	..		..
11 *Indices showing the relations of the various Sagittal Arcs—*							
(*a*) Fronto-Parietal Index .	86·90	112·31	99·61	..	..	..	104·17
(*b*) Fronto-Occipital Index .	95·17	92·31	93·74	..	..	..	
(*c*) *Parieto-Occipital Index.*	*109·52*	*82·19*	*95·86*	..	..	.	

TABLE II—*contd.*

Skull Nos.	M. 27.	M. 28.	Mean of M. 27 & M. 28.	M. 29.	M. 31.	M. 32.	M. 40.
Sex.	Adult-Male.	Adult-Male.		Child.	Child.	Child.	Adult-Female.
Indices showing the relations of the various Sagittal Arcs—contd.							
(*d*) Fronto-Sagittal arc Index	35·37	32·83	34·10	..	..	..	..
(*e*) Parieto-Sagittal arc Index	30·73	36·87	33·80	..	..	..	..
(*f*) Occipito-Sagittal arc Index	33·66	30·30	31·98	..	..	..	.
12 *Indices indicating the amount of curvature (bulging) of each of the three contour bones of the Cranium*—							
(*a*) Frontal Curvature Index .	90·34	89·23	89·79	..	96·97	..	95·00
(*b*) Parietal Curvature Index	92·86	91·78	92·32	..	..	..	89·60
(*c*) Occipital Curvature Index	77·54	80·83	79·19	..	..	..	..
Indices of the Face.							
13 Total Facial Index . .	101·64?	101·59	101·62?	..	..	..	..
14 Superior Facial Index . .	62·30?	61·11	61·71?	..	..	..	..
15 Zygomatico-Malar Index .	72·95?	74·60?	73·78?	..	..	..	..
16 Zygomatico-Frontal Index .	77·87	77·78	77·83	..	..	..	..
17 Zygomatico-Mandibular Index .	46·72?	65·08?	55·90?	..	..	..	..
18 Interorbital Index . . .	16·67	16·98	16·83	..	20·00	20·69	..
19 Orbital Index	(R) 90·48 (L) 77·78	(R) 73·81?	(R) 82·15? ..	.. ..	(R)83·33 ..	(R)88·57 ..	.. (L) 94·74
20 Nasal Index	42·31	43·64	42·98	47·62	51·22	47·73	..
21 Maxillo-Alveolar Index . .	113·46	..	..	139·02	129·27	127·27	..
22 Palatal Index	68·63?	..	..	91·43	75·00	86·49	..
23 Mandibular Index	..	.	..	..	74·39	94·67	..
24 Ramus Index	50·72	47·89	49·31	..	58·70	60·78	..

TABLE II—*concld.*

Skull Nos.	M. 27.	M. 28.	Mean of M. 27 & M. 28.	M. 29.	M. 31.	M. 32.	M. 40.
Sex.	Adult-Male.	Adult-Male.		Child.	Child.	Child.	Adult-Female.
Indices showing relations between Cranium and Face.							
25 Longitudinal Cranio-Facial Index	..	..	..	..	..	51·20	.
26 Transverse Cranio-Facial Index	89·71?	94·03	91·87?	..	..	..	..
27 Vertical Cranio-Facial Index .	..	..	..	..	..	..	.
Additional Indices.							
28 Orbito-Nasal Index . .	115·79	..	..	..	..	..	..
29 Index of Occipital Foramen .	..	..	..	..	..	65·79	..
30 Meatal Position Index . .	52·25	51·08	51·67	..	..	..	..

TABLE III.—Facial Measurements in an Antero-Posterior Plane.

Skull Nos.	M. 27.	M. 28.	Mean of M. 27 & M. 28.
Sex.	Adult-Male.	Adult-Male.	
Projections.			
A. Pre-Auricular length	89	96	92·5
B. Post-Auricular length	101	101	101·0
E. Projection of lateral Orbital Margin in front of Meatal Plane.	69	..	..
F. Projection of Lachrymal Margin of Orbit . .	..	83	..
G. Projection of Nasion	88	92	90·0
H. Projection of ascending Nasal Process of Maxilla	94	100	97·0
I. Projection of lateral Nasal Margin . . .	89	88	88·5
J. Projection of Subnasal Point	96	89	92·5
K. Projection of upper Alveolar Point . . .	101	95	98
L. Projection of lower Alveolar Point . . .	..	..	..
N. Projection of Malo-Maxillary Point . . .	69	..	..
X. Height of the Dorsum of the Nose from the inferior Orbital Margin.	21	..	..
Y. Projection of the Tip of the Nose from the Meatal Plane.	100	..	..

TABLE IV.—Measurements showing the Projection of the Cheek in an Antero-Posterior Plane.

Skull Nos.		M. 27.
Sex.		Adult-Male.
	Measurements.	
A.	Radial distance of the anterior end of the Fronto-Malar suture from the Trans-meatal Axis.	78
B.	Radial distance of the mid-point in the lateral margin of the Orbit in the Trans-meatal Axis.	73
C.	Radial distance of the point on the lower margin of the Orbit crossed by the Malo-Maxillary point from the Trans-meatal Axis.	85
D.	Radial distance of the Malo-Maxillary point from the Trans-meatal Axis . . .	70
E.	Distance from lower Malo-Maxillary point to the anterior Fronto-Malar point . .	45
F.	Distance of the lower Malo-Maxillary point to the nearest point on the lower margin of the Orbit.	25

TABLE V.—Measurements of the Teeth.

Skull Nos.	M. 27.			M. 28.		
Sex.	Adult-Male.			Adult-Male.		
	Trans-verse diameter.	Antero-posterior diameter.	Index.	Trans-verse diameter.	Antero-posterior diameter.	Index.
Upper Jaw.						
Right half—1st Molar	12	11	109·09	..	..	..
2nd Molar	11	10	110·00	..	..	..
3rd Molar	9	8	112·50	..	..	..
Lower Jaw.						
Right half—1st Molar	11	11	100·00	11	10	110·00
2nd Molar	..	..	..	11	10	110·00
3rd Molar	11	12	91·67	10	11	90·91
Left half—1st Molar	12	11·5	104·35	11·5	10	115·00
2nd Molar	..	..	..	..	..	..
3rd Molar	9	8	112·50	11	10·5	104·76

CHAPTER XIX.

GENERAL SURVEY.

Relations with the Contemporary Cultures of other Countries.

Many links that were forged by trading intercourse between the Indus Valley people and their neighbours of Sumer, Elam and elsewhere have now been firmly established. The numerous seals of Indian design and workmanship that have been found at Sumerian and Elamite sites first drew attention to the probability of ancient trading relations between these countries; and certain objects more recently unearthed at Mohenjo-daro appear to be importations from Sumer since these objects occur much more frequently at Sumerian sites than they do in the Indus valley. The fine seal illustrated in Pl. C, figs. b and c, is certainly foreign in origin, both in the motif upon it and because the fine, polished white marble of which it is made is a material which was never used for making the Indus Valley seals; nor has any other object of marble been found there. The inverted position of the animals is unknown elsewhere in the art of the Indus valley, but in Elamite art of the archaic period it is quite common, as I have already shown.[1] Moreover, the animals on this seal were evidently engraved with the aid of a drill, of which traces remain in the hooves and muzzles. This technique is well known on the early Sumerian and Elamite seals; it was necessitated by the hardness of the materials of which the seals of those countries were generally made. On the softer stones that were used for seal making in the Indus valley it was unnecessary to employ a drill; nor have we found any evidence of its use except for details. The perforated boss at the back of this seal is also unlike those of the Indus Valley seals, and on this ground, together with the design, material and technique, we have no hesitation in pronouncing this seal as of foreign origin.

The fragment of an engraved steatite vessel illustrated in Pl. CXLII, 45, is another certain importation. Already on p. 321, I have pointed out the close resemblance of the design on this fragment to that on certain steatite vessels that have been found in both Elam and Sumer (Pl. CXLII, 43 a). As these vessels are much more common in those countries than in India where we have only found the one example, we must conclude that they were not manufactured in India or at least not in the Indus valley. The material of both the foreign and Indian specimens is exactly the same, and, as the late Dr. Hall pointed out, is "precisely like the 'potstone' still used in India for making pots and bowls".[2] This variety of stone is fairly common and, I am given to understand well distributed in the Near and Middle East. It would not be surprising if the rough stone had been exported from India and returned in a finished state as bowls and other articles. We have already seen that the stone vessels made by the people of Mohenjo-daro are usually poorly finished; evidently any skill that they once had in making stone vessels had been lost, though they still retained a remarkable skill in the manufacture of hard stone beads. The Sumerian and Elamite

[1] This inversion is also known on certain buttons of ancient Egypt which have been said to show a Syro-Mesopotamian influence: Petrie, *Buttons and Design Scarabs*, p. 3, pl. II, figs. 100, 101, 109, 110, 114, 115, etc.

[2] Hall and Woolley, *Al-'Ubaid*, p. 42.

vessels that were ornamented with mat patterns, with which we include the fragment from Mohenjo-daro, were exceptionally well made and finished, quite in accord with other stone vessels that were commonly used in Sumer in the Early Dynastic period, and even before that time.

Another probable import is a certain kind of decorated or etched carnelian bead (Pl. CXXXV, 3). Beads of this shape with identical ornamentation have been found at Ur and dated to the period of the early Royal Tombs of that city. As these beads are very rare at Mohenjo-daro and more commonly found at Ur, we must provisionally assume that they were imported into India from Sumer, unless they were imported into both countries from a third or were made elsewhere in India and were imports to the alluvial plains of the Indus. The examples found at Ur evidently belong to sets, that is, two or more beads were used in a necklace, whereas at Mohenjo-daro—none have yet been unearthed at Harappā—the two examples found were in separate necklaces.[1] It would be most interesting to find the exact provenance of these beads; etched beads with this particular design have as yet been found only in Sumer and the Indus valley.

Another possible importation into India is the model ram in Pl. LXVI, 23, which has a hollow in its back and can therefore be termed a theriomorphic vase. With this one exception such vases are unknown in the Indus Valley culture, though they are well known in Moravia, Crete, Anatolia, Egypt, Sumer and Elam. There is, however, some possibility that this particular jar was actually made in India, judging from the eyes which are merely pellets inserted in slits in the clay: but that the idea at least is foreign is suggested by the failure of the modeller to fashion life-like legs.[2]

The axe-adze illustrated in Pls. CXX, 27; CXXII, 12, is a fifth likely importation. At both Mohenjo-daro and Harappā a very good selection of tools and implements has now been found, but all are of very simple types. Except this axe-adze none are socketed, though socketed weapons were quite common in contemporary Sumer. Since writing the chapter in which on pp. 457-59 I questioned the apparent date of this implement and suggested that it may have been left by someone who was quarrying for bricks at a much later date, the finding of a pottery model of a socketed weapon (Pl. CXII, 1) at a very low level has perhaps altered the case, though the shape is not the same. A precisely similar type of axe-adze with the same long collared shaft has recently been found at Tepe Hissar near Damghan by Dr. E. F. Schmidt.[3] With one of the axe-adzes from Tepe Hissar was a seal which had a chariot with spoked wheels engraved upon it.[4] This type of wheel is well known in Sumer of c. 1,500 B. C., but apparently not in the earlier periods during which the wheels were always represented as more solidly made. The Tepe Hissar axe-adze, or mattock, as Dr. Schmidt terms it, is stated to be copper, but I should imagine that it would have been very difficult to cast this tool in pure metal.[5]

[1] One is illustrated in the first book on Mohenjo-daro, and the second in this book.

[2] The same awkward manner of representing the legs of animals is frequently seen in early Sumerian figures.

[3] Schmidt, *Tepe Hissar Excavations*, 1931: Museum Journal, Philadelphia, vol. XXIII, 1933, pl. CXVIII, fig. H. 168.

[4] *Op. cit.*, pl. CXXX, fig. B.

[5] Possibly it has not been analyzed and may yet be found to contain a proportion of tin.

The small stout pottery rings (p. 435), of which so many examples have been found at Mohenjo-daro and whose use has hitherto been uncertain, have been proved by Frankfort to have been used as net-weights at Tell Asmar ; a number of them were found attached to a net. This is undoubtedly another link between Sumer and India, but in which country this type of net-weight originated it is impossible to say ; it can hardly have been an independent contrivance as the rings from the two countries are so closely similar that it is quite evident that one country borrowed the idea from the other. It is surprising that these rings should have been so well made, considering the mundane use to which they were put. As both Sumer and Sindh are so destitute of suitable stone for net-weights,[1] pottery was the obvious material to use for the purpose ; metal was too expensive to risk its very likely being lost. These pottery net-weights though stoutly made would only have been used for river-fishing where there were no rocks. Their ring-like shape would have offered little wind resistance when the net was being thrown and would have helped to sink them very rapidly. Good examples of these rings are seen in the first book on Mohenjo-daro (Pl CLII, upper part of fig. 16, A 367).

Associations with Egypt.

We have been unable to establish any but indirect connections with Egypt, but this is not surprising since we are concerned with a period which is contemporaneous approximately with the Sixth Dynasty of that country. Not a single object that can definitely be said to be of Egyptian workmanship has appeared at Mohenjo-daro ; nor has anything from the Indus valley been found in Egypt.[2]

Certain objects and motifs, however, suggest indirect communication through other countries ; segmented beads (Pl. CXXXVI, 6) and the hemispherical terminals of necklaces are common to the Indus valley, to Sumer and Egypt, and so is the device of a deity or hero grasping a lion on either side (seals 75, 86, 122, and 454), which may have been introduced into Egypt at a very early period from either Sumer or Elam. This device is, indeed, only known in Egypt in Predynastic times ; and the general consensus of opinion is that certain of the predynastic people of Egypt were immigrants from a region somewhere in the vicinity of the Red Sea, which had trading if not racial connections with the inhabitants of the plains of the Euphrates and the Tigris. Another point in common between Egypt and ancient Sindh is the use of stools with the legs of oxen (seal 222) ; these occur in Egypt from the First Dynasty until fairly late times. A couch with bull's legs is also seen on a fragment of a monumental stela from Tell Asmar, which is dated to approximately the period of Mohenjo-daro.[3] It is probable that these bull-legged stools were originally used by royal personages and later by chiefs, for in both Egypt and Sumer, as well as elsewhere, the bull

[1] Though stone is obtainable some 60 miles from Mohenjo-daro, there is so much flint in it that it would have been very laborious to make suitable net-weights of it.

[2] Baron von Bissing has published in *Archiv. für Orientforschung*, IV, 21 ff., a seal purchased in Cairo in 1912 which is undoubtedly of Indian workmanship. There is, however, no evidence that it was found in Egypt, and Cairo is a general mart for Oriental antiquities, especially from Babylonia. See also *Annual of American Schools of Oriental Research*, vol. X (1928-29).

[3] Frankfort, *Iraq Excavations of the Oriental Institute*, 1932-3, p. 45, fig. 40.

was regarded as a symbol of authority and strength. The deity on seal 222 would fittingly be represented as seated on a stool of this kind, and the couch at Tell Asmar appears to have been the nuptial bed of a god and goddess. It is difficult to imagine that the occurrence of bull-legged stools and couches in three of the greatest civilizations of the ancient East is entirely fortuitous ; it is far more likely that in all they had a royal or religious significance derived from the same source. In some parts of Africa sanctity as well as dignity still attaches to a stool, and only the king or chief uses one in tribal assemblies.

Another feature common to Egypt, Sumer and the Indus valley is the occurrence of small model beds on which a female figure reclines, though as yet only two examples have been found at Mohenjo-daro.[1] These recumbent figurines possibly represent concubines, and in Egypt they seem to have been buried with the dead with the idea of providing for the next world.[2] Whether the models found in Sumer and Mohenjo-daro were grave equipment is uncertain ; at the latter site no cemetery has yet been found. In Egypt the model couch frequently has room for another occupant, but in Sumer and India it is only large enough for one.

I no longer regard the female figurines from Mohenjo-daro, other than the Mother-goddess, as toys ; they either had a votive purpose, especially the figure of a woman suckling a child which was perhaps a thank-offering for child-birth, which had its counterpart in Egyptian figures, or they were intended to provide a wife or concubine in the next world, whose fertility was indicated by the infant at her breast. No infants are represented with these female figurines in Sumer and I only know of a very few examples from Egypt.[3]

The faceted beads illustrated in Pls. LXXXII, 5 ; CXXXIV, 2, possibly form another distant association with Egypt, as I have already indicated on p. 516. This type of bead is rare at Mohenjo-daro and is as yet unknown in any other country than Egypt, where it is found in Roman burials. For the present we should, perhaps, regard its appearance in the latter country as entirely independent of India until we find it elsewhere at, or a little later than, the period of the Indus Valley civilization.

Fly-shaped beads also occur in both Egypt and India, though so far one only has been found at Harappā in the latter country. Their scarcity in the Indus valley may perhaps be accounted for by the fact that no cemeteries have been found,[4] so that we can expect only to find specimens that were accidentally dropped. Fly beads have been found in the " A " graves at Kish, and also at Ur. In Egypt they date from Predynastic times and were especially common in the Twelfth Dynasty. Since according to Breasted,[5] a collar of gold flies was given by the king as a reward to his soldiers, Petrie suggests that the fly was

[1] Marshall, *Mohenjo-daro and the Indus Civilization*, pls. XCV, 17 ; CLIII, 25.

[2] Petrie, *Objects of Daily Use*, p. 60 ; *Ancient Egypt*, 1917, p. 77.

[3] *Journ. Eg. Arch.*, vol. XV, p. 36, pl. VIII ; Petrie, *Ehnasya*, pl. XL, 20. Some are known of Saite date and one from Gurob, but no very early examples.

[4] The human remains in jars at Harappā seem to date from a later period than the one with which we are concerned.

[5] *Ancient Records*, II, 23, 585, 587.

an emblem of activity or swiftness.[1] That it was worn as an amulet in Egypt, Sumer, and the Indus valley is practically certain, but whether in very early days it was a symbol of swiftness it is impossible to say.

Perhaps the most striking link between Egypt and the Indus valley is the resemblance of the design on three Egyptian seals of the Thirteenth-Seventeenth Dynasties[2] to the cord pattern on the copper tablet in Pl. XCIII, 4. This cord pattern is said to have appeared late in Egypt—according to Petrie not earlier than the Thirteenth Dynasty. Its exact counterpart has not yet been found in any of the countries between India and Egypt, but that it will one day is more than likely; until it does, we shall not know whether this motif originated in India or in a country further west, whence it spread to both Egypt and India. Its occurrence on three Egyptian seals of scarab form shows that the design is not fortuitous; nor can it be in India where it is seen on two copper tablets.[3] It should be noted that both in Egypt and India the device appears to have had an amuletic value.

Another object which links the Indus valley not only with Egypt but with Crete also is the candle-stand seen in Pls. LIV, 12; LVI, 35; it is described on p. 414, where the references to Crete and Egypt are given.

A peculiar spoon, or ladle, of copper or bronze, which in shape recalls a mussel-shell (Pl. CXXI, 33, 37),[4] has its counterpart in ancient Egypt, save that there they were made of aragonite and slate[5] instead of metal. Probably the advantage of this shape for scraping was early recognised in both countries, but the real article wore out so quickly that it was imitated in metal and stone. The surprising point is that the shape was not modified to make it less flimsy.

I would emphasize once more that it by no means follows that the above points in common between the cultures of Egypt and the Indus valley imply any direct intercourse. A considerable part of the very early civilization of Egypt can be traced to Elamite or Sumerian influence, directly or indirectly, for, as we know, during a considerable period of her history Egypt was well acquainted with the Red Sea and Somali coasts. It would not have been difficult to reach those places from north-west India also, even in the small vessels of those days; but it would, perhaps, be safer in the present state of our knowledge to assume that if India borrowed anything from Egypt, or the other way about, it was through Sumer and its neighbour Elam as intermediaries.

Connections with Balūchistān.

The most common motif on the Indus Valley pottery is a very distinctive pattern of intersecting circles (Pls. LIV, 5, 6; LVIII, 7; LXIX, 7; LXX, 30), which ranges from the very carefully drawn examples in Pls. LIV, 6; LVIII, 7, to those which are so crudely drawn (Pl. LXIX, 9) that if we had not

[1] *Amulets*, p. 12.

[2] Petrie, *Buttons and Design Scarabs*, p. 15, pl. VIII, 128–30.

[3] For the first example, see *Mohenjo-daro and the Indus Civilization*, pl. CXVIII, 5.

[4] No. 33 has lost its shape through sheer hard wear. For another example, see *Mohenjo-daro and the Indus Civilization*, pl. CXLI, 7.

[5] Engelbach and Gunn, *Harageh*, pl. XV, 10, p. 16.

the finer examples before us their origin might not readily have been recognised. This design of intersecting circles (or repetition motif, as Professor Childe aptly terms it[1]) is most often seen on vessels of medium size and substantial thickness, and frequently of a tall, elongated form (Pl. LVIII, 7), a shape that is very convenient for transport. This design of circles is also common at Harappā, but as far as we can at present ascertain it was not used to ornament pottery outside Sindh and the Panjāb.

The pottery with this circle motif found by Sir Aurel Stein at only one site, Dabar-Kōṭ,[2] in Northern Balūchistān was very probably not a local product. In Southern Balūchistān, the intersecting circle motif is not found on any of the pottery unearthed.

Another very common design on the pottery of Mohenjo-daro, including the larger vessels, is the tree motif (Pls. LVIII, 7; LXIII, 15; LXVIII, 8, 12 (upper register), 26; LXIX, 12, 14, 22 (upper register); LXX, 5, 16, 18, 31, 37). It was apparently valued as a decoration because of its simplicity and also owing to the fact that it could be used without much trouble to cover broad surfaces quickly and efficiently. This design, too, seems to have been confined to the Indus Valley culture, though a few examples have been found in Northern Balūchistān at Sūr-jangal[3] and in Southern Balūchistān at Kulli and Mehī-damb.[4]

Another device that seems to be unquestionably Indian in origin is the *pipal* leaf (Pl. LXX, 28), either portrayed in an easily identifiable form or so conventionalized as to be hardly recognisable.[5] This device appears more commonly on the pottery of Harappā than on that of Mohenjo-daro. Its occurrence in Balūchistān must obviously be attributed to Indian influence, and more than probably the jars on which it occurs were made in the Indus valley. In Northern Balūchistān the *pipal* leaf is seen painted in black on red sherds at Pēriāno-ghuṇḍai and Dabar-Kōṭ[6] and in the south at Kulli and Mehī. It occurs more frequently at Nāl and other sites with allied ware;[7] the pottery of Nāl, however, stands apart in make and decoration from that of the Indus valley.[8]

The motif of a festoon of balls that sometimes hangs from the lower edge of the bottom register on certain painted vessels of substantial size from Mohenjo-daro is also recorded from Dabar-Kōṭ, but not as yet at any site of Southern Balūchistān.[9]

[1] *Journal British Association*, Sept., 1933, pp. 82, 83.

[2] *An Archæological Tour in Wazīristān and Northern Balūchistān*, pls. XIV, D. 2, D. 24; XV, D. 58, D. N. b. 12, D. 66, D. N. C. 10.

[3] *Op. cit.*, pl. XX.

[4] *An Archæological Tour in Gedrosia*, pls. XXVIII, Mehī, I. 9, 2; XXI, I. iv, 2.

[5] *Mohenjo-daro and the Indus Civilization*, pl. XC, 18.

[6] *An Archæological Tour in Northern Balūchistān*, pls. VI, P. 47; XIV, D. 21; XV, D. W. i. I.

[7] *An Archæological Tour in Gedrosia*, XXIII, Kul. V, v. 5; XXX, Mehī, II. 4, 5; XXXIII, Saka, 3; XXVII, Mehī, 8.

[8] Sir Aurel Stein regards the Nāl ware as later than the black-on-red ware. *Op. cit.*, p. 141. Also see Childe in *Ancient Egypt and the East*, 1933, p. 25.

[9] *Northern Balūchistān*, pl. XIV, D. 17; Mazumdar, *Explorations in Sind*, pls. XXII, 29; XXVIII, 16.

The examples given—I could find more—leave no doubt in my mind that the settlements mentioned, namely, Dabar-Kōṭ, Sūr-jangal and Pēriāno-ghuṇḍai in Northern Balūchistān and Kulli, Mehī-damb in Southern Balūchistān, were in direct communication with the Indus valley in prehistoric times. All are large mounds, with the possible exception of Sūr-jangal, and must have been places of great importance; in fact, Sir Aurel Stein suggests that Kulli was perhaps the chief prehistoric settlement of Kolwa, and Dabar-Kōṭ is in the Thal plain which was crossed by a well known trade route from the Indus valley towards Kandahār.[1] Over well travelled routes it was worth while to transport pottery, especially if that pottery contained valuable merchandize; and I have already pointed out that the design of intersecting circles is most often found on a type of vessel whose shape appears to be admirably adapted for transport.

Another type of vessel from Mohenjo-daro, which had a number of small perforated holes, as described on p. 207 (Pls. LIV, 4; LVIII, 2; LIX, 24, 25; LXII, 27–9), has also been found at several sites in Southern Balūchistān, notably, Suktagēn-dōr and Kulli.[2] The perforated jar, in almost perfect condition, found at the latter site is identical with many at Mohenjo-daro.

The very large mound at Suktagēn-dōr in particular contained many antiquities that we associate with Mohenjo-daro. For instance, the moulded upper portion of the stem of an offering-stand is similar in shape to many from Mohenjo-daro (Pls. LII, 29; LV, 10; LXV, 35);[3] chert ribbon-flakes there are in abundance;[4] a copper arrow-head is the same pattern as those from Mohenjo-daro (Pl. CXXV, 42–7); a piece of shell inlay with an incised three-armed motif is exactly duplicated in Pl. CXLII, 32, of this book, and a rough handle[5] surely came from a handled bowl of a type well known at Mohenjo-daro (Pl. LXII, 14–20); the whistle in the shape of a hen[6] we know well; and a curious narrow-mouthed vessel[7] which is also represented at Mohenjo-daro (Pl. LX, 51) is thought to have been used for eye-paint. The two long perforated cylinders[8] on the same plate of Sir Aurel Stein's finds at Suktagēn-dōr are surely beads, but longer than those that occur at Mohenjo-daro (Pl. CXXXVI, 17)—they are more like some that have been found at Jemdet Nasr;[9] and the copper axe[10] is a type that is well represented in the two Indus Valley cities.

Suktagēn-dōr is fairly close to the Makran coast and Sir Aurel Stein suggests that it was a convenient trade depôt between the fertile Kej valley and a number of little harbours along the coast,[11] whence no doubt a very considerable trade was done with India.

[1] *Northern Balūchistān*, p. 56.

[2] *Tour in Gedrosia*, pls. VII, Su. 27; XX, Thal, 3; XXV, Kul. I. viii. 3.

[3] *Op. cit.*, pl. V, Su. i. 4.

[4] *Op. cit.*, pl. VI.

[5] *Ibid.*, Su. 24.

[6] *Ibid.*, Su. iv. a. 23.

[7] *Op. cit.*, pl. VII, Su. iv. a. 4.

[8] *Ibid.*, Su. vi. 2. 3.

[9] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, vol. 1, pl. LXXI, 16–18.

[10] *Archæological Tour in Gedrosia*, pl. VII, Su. iv. a. 10.

[11] *Op. cit.*, p. 71.

From Mehī comes a pottery vessel[1] of the same shape as some recorded at Mohenjo-daro (Pl. LVI, 25–7) which are thought there to have had some ritual use. On p. 186 I have already compared the incised pattern on a dish from Mehī[2] with a similar pattern from Mohenjo-daro. A pottery model of a cart and a stone vessel divided into compartments[3] have already been recognised by Childe as parallels with Mohenjo-daro.[4]

At Shāhī-tump a stone ring[5] was found which is remarkably like some of the mace-heads from Mohenjo-daro (Pl. CIV, 1, 2, 4); but apart from this object and a broken blade-axe,[6] nothing else has been found there that we can directly correlate with the Indus Valley civilization.

It will be noted, then, that a number of objects and some of the pottery found at ancient sites in Balūchistān can be closely correlated with similar objects and pottery at Mohenjo-daro. Suktagēn-dōr produced the largest number of similar objects, and Shāhī-tump was a poor second. In fact, the deep stone bowls from this latter site[7] are so unlike the stone vessels of Mohenjo-daro and approach so closely to early Mesopotamian forms as to incline me to the opinion that Shāhī-tump is of earlier date than Suktagēn-dōr. The majority, however, of the objects from both sites, including the pottery, differ so radically from the corresponding objects at Mohenjo-daro that they may be the work of a different people deriving their culture from the west rather than from the Indus valley.

In certain respects the religious beliefs of ancient Balūchistān resemble those of its eastern neighbour. There was some regard paid to a female deity which Sir Aurel Stein thinks was a mother-goddess, and judging from the great numbers of pottery figures of the humped bull, reverence was also paid to this animal. These similarities, however, by no means imply any very close connection between the peoples of the two countries.

The routes through Balūchistān must have been of the utmost importance to the Indus Valley cities for overland trade with the west. There is no difficulty, as far as I can see, about the possibility of these routes; true there are deserts to be traversed, but whether they were anciently so formidable as Alexander found them is open to question, especially as Sir Aurel Stein is of the opinion that considerable dessication has taken place since prehistoric times.[8]

From the character of the country and the fact that not a single Indus Valley seal has been found in either North or South Balūchistān, we may infer that the actual carriers in this trade were local people and not Indians. These carriers in their journeys to and fro must have introduced many foreign commodities into the countries that they visited, and it is not surprising to find some at least of the products of India in their own country.

[1] *Archæological Tour in Gedrosia*, pls. XXVIII, Mehī, I. I. 2; XXX, Mehī, IV. 2·1.

[2] *Op. cit.*, pl. XXX, Mehī, II, 4. 4.

[3] *Op. cit.*, Mehī, II, 3·32; pl. XXX, Mehī, II, 1·3.

[4] *Ancient Egypt and the East*, 1933, p. 19.

[5] *Tour in Gedrosia*, pl. XIV, Sh. T. iii. 13.

[6] *Op. cit.*, pl. XIII, Sh. T. vii. I. 35.

[7] *Op. cit.*, pl. XIII.

[8] *Op. cit.*, pp. 34, 132.

The researches of Sir Aurel Stein also provide evidence of trade between Sumer and Elam and the earlier civilization of the Indus valley whose remains are known to exist beneath the mounds of Amri in Sindh. This site which is some eighty miles south of Mohenjo-daro was tentatively examined by Mr. N. G. Majumdar for the Archæological Survey in the season 1929-30. The upper levels contain pottery similar to that of Mohenjo-daro and Harappā, but in the lower levels the pottery is quite distinct in both technique and decoration and recalls certain of the wares of Balūchistān.[1]

The question arises whether the Indus valley was in touch with Sumer and Elam by sea as well as by land; and I am inclined to the view that the Indian merchants used both land and sea routes. There can be no reasonable doubt that the sea-route was constantly used, as it is at the present day, though the total distance from the modern port of Karachi to Basra is well over 1,400 miles and may have been longer in ancient times, for there is strong evidence that the mouths of the Euphrates and Tigris and of the Indus were further inland than they now are.[2] A sailing ship would travel further owing to the necessity for tacking, and in very early days the journey may have been rendered even slower by creeping along the coast, which would have very much increased the distance.[3] At the present day large dhows of an average of 60 tons take about two months from Basra to Karachi, and this time may be increased owing to the many calms in the Persian Gulf. Small dhows of about 5 tons, it is said, can only travel to India and back during December, January and February; the larger boats can and do travel during the other months of the year. I am of the opinion that quite as early as 2,500 B. C. there were boats trading in Indian waters as large and nearly as well equipped as the sailing vessels used by native sailors at the present day;[4] we know that at about the same period boats voyaged from Egypt to Syria and back for supplies of cedar wood.

The available evidence suggests that the inhabitants of Mohenjo-daro had their "frontier trouble". The mountains of Southern Balūchistān were in all probability inhabited by hill-tribes who in good seasons were able to glean a bare subsistence in the mountain valleys, which were better watered than they are now, but in times of stress or during the hard winter season came down and plundered the rich plains of the Indus valley, as the tribes further north would like to do at the present day.[5] In fact, according to Burton, as late as the middle of the seventeenth century the mountains of Balūchistān were inhabited by hardy mountaineers whose love of plundering knew no bounds.[6] Raids by

[1] This has just appeared in a report entitled, *Explorations in Sind*, Mem. Arch. Surv. Ind., No. 48, 1934.

[2] Majumdar has, however, found a Prehistoric flint knapping station at Tharro, just below Tatta, showing that this part of Sindh, at all events, was dry ground in very early times.

[3] The discovery of the direct voyage across the Indian Ocean is attributed to Hippalus (about 45 A. D.). See Sir Arnold Wilson, *The Persian Gulf*, p. 53. Possibly it was known in much earlier times, but kept a secret.

[4] The dhows from even such obscure ports as Gwader on the Makrān coast will visit the Malabar coast and Zanzibar: Stein, *An Archæological Tour in Gedrosia*, p. 72.

[5] Gordon Childe also alludes to the character of the ancient settlements in Balūchistān, describing both the people and their wares as barbaric: *Ancient Egypt and the East*, 1933, p. 18.

[6] R. Burton, *Sind Revisited*, II, pp. 159-60.

mountain tribes would amply explain the finding of skeletons in various parts of the upper levels of Mohenjo-daro, and perhaps also the damage to the statuary; the latter would imply that the raiders were either of a different faith from that of the adjacent lowlands or puritanically inclined. Such a city as Mohenjo-daro once left with a weak government, as it undoubtedly was in the Late Period owing to its partial desertion, would have been defenceless against such aggressions, though in its more flourishing periods it was doubtless well able to guard itself from raids. There is some evidence of the existence of walls and gates (p. 5) during the Intermediate Period, and even of watch-towers at strategic points (pp. 4, 148). Moreover, despite the very considerable area of the city of Intermediate date that has been cleared, including a palace and public buildings as well as houses, there is no trace of any part of it having been sacked and burned, as happened to so many of the cities of Mesopotamia on more than one occasion; those few fires that did occur involved only the houses in which they broke out. The nearest foothills of the Khīthar Range are only some 40 miles from Mohenjo-daro, a negligible distance to mobile bands who are out after loot.

In his account of the skeletal material of the Late Period (Chapter XVIII), Dr. Guha has raised several points of especial interest. On p. 615 he states that he found evidence of the calcination of some of the nine skeletons that were found huddled together in a pit on the southern side of Long Lane. This calcination is difficult to account for, as these people are thought to have been slain by raiders (pp. 116-18). I would suggest, however, that the bodies were burnt somewhat perfunctorily for lack of time or fuel by their own people when the danger had passed, so as to comply as far as was possible with the ritual that we think was normally practised by the people of Mohenjo-daro, and that the remains were then hastily covered over. The complete absence of burials, save a few which circumstances suggest were the victims of tragedies and a very few fractional burials, points to cremation as the chief mode of disposal of the dead.

The slaughter of children—and there were no less than five in the group of nine—suggests that the raiders nursed a consistent hatred of the people of Mohenjo-daro as a whole, and total extermination appears to have been their endeavour. In that they were no worse than some of the tribes of the N. W. Frontier of India to-day who are known to mutilate the dead, even those of their own religion, and to massacre men, women and children alike. That their forerunners were as thorough in their raids is evident from the decapitation of at least one of the nine persons in the Long Lane group; and we have already seen that a decapitated head found in a cess-pit in Low Lane (p. 95) was undoubtedly that of another of their victims.[1] That the raiders were not head-hunters is proved by the heads not being taken away; and there is no reason to suppose that the murders were committed by some aboriginal tribe in the neighbourhood.

Dr. Guha's measurements lend some support to the suggestion that the people of Mohenjo-daro were more or less closely akin to some of the early inhabitants of Sumer, as represented at al-'Ubaid and Kish. The skulls of his Group

[1] One of the male skulls (No. 6) in a group of skeletons found by Hargreaves in 1925-6, had been cut as though by a sharp and heavy weapon. Another skull, that of a woman in the same group, is also marked by a cut: Sewell and Guha in *Mohenjo-daro and the Indus Civilization*, pp. 616-17.

"A" agree fairly closely in size and shape with skulls found at those two sites, though those from Mohenjo-daro are larger and more massive.

Dr. Guha also states that some of the teeth were very badly worn. This may perhaps be attributed to the use of the saddle-quern, since particles of grit from the latter must have been continually mixed with the flour. The teeth of the al-'Ubaid skulls and of those from Kish, it has been noted, are similarly worn down.

The curious method of laying bricks which is seen in certain walls at Mohenjo-daro (Pls. XXII, 2; XXIII, 7; XXXIX, b) and is described on pp. 97, 153 has its counterpart in certain masonry of the time of Ur-Engur at Ur, and it also occurs at Warka. If I am correct in interpreting Woolley's description of this brickwork at Ur, some of it is exactly like that shown in Pl. XXIII, 7.[1] I do not know if earlier examples of masonry with bricks set vertically have been found in Mesopotamia, though walls in which the bricks were arranged herring-bone fashion occur in very early buildings at Kish, Ur, Telloh, Khafaje, and other Sumerian sites.[2]

The latest Indus Valley examples of masonry in which the bricks were laid in every conceivable way except sloping are some 500 years earlier in date than the similar masonry in Sumer; and this style of masonry goes back to even earlier times in the Indus valley, for it occurs down to the lowest levels to which we have reached,[3] though less frequently.

There is some doubt whether this type of masonry was used for ornamental purposes; it may have been covered with mud-plaster.[4] It was perhaps thought that a wall so constructed was stronger than one in which the bricks were laid in the ordinary way; though I much doubt if the question of strength was seriously considered. The lack of a proper bond has led in one instance to the partial collapse of such a wall.

It is a little difficult to account for the absence of the true vault at Mohenjo-daro, seeing that it was in use at Ur, Kish, Nippur, and other Sumerian cities from a very early period, made of both baked and unbaked bricks. I cannot but think that examples of the true arch will eventually be unearthed at Mohenjo-daro; it is difficult to believe that its principle was unknown to the masons there, though it is probable that it was sparsely employed and only for very special purposes. The false, or corbelled arch was as far as we know at present more often used for covering the wider drains and culverts than for doorways. We have found no evidence as yet that it was used for roofing the rooms

[1] Woolley, *Antiquaries Journal*, vol. XIII, No. 4, p. 361.

[2] For an admirable account of this method of building and the reason for it, see P. D. Delougaz, "Plano-convex Bricks and the Methods of their Employment"; *Orient. Inst., Univ. of Chicago, Studies*, No. 7.

[3] *Mohenjo-daro and the Indus Civilization*, p. 271. The statement that it is not found in the Intermediate levels must now be withdrawn.

[4] Unless mud-plaster has been burnt, traces of it are only found in the upper levels of the mounds where there is more or less immunity from damp. Mud-plaster never adheres very firmly to burnt brick, which is probably the reason for its absence from nearly all the walls.

of houses or public buildings; its limitations probably led to the exclusive use of flat roofs supported by beams, for corbelling can only be satisfactorily employed to roof quite narrow rooms.

If the Indus valley had been as sparsely wooded as Sumer, it is likely that the true arch would have been just as much in evidence there As is well known, sun-dried brick was the material most used in early Sumer, and bricks of this kind are quite unsuitable for corbelling; unless they are supported along their whole length mud bricks will not stand great pressure. It was doubtless on this account that the Sumerians employed the true arch so early. At Mohenjo-daro burnt brick was universally used, mud brick being employed solely for foundations, and that infrequently, or to build platforms to raise buildings out of the reach of floods. It was this very extensive use of burnt brick, no doubt, that led to the survival of the false arch, which is both easier to construct and as well serves certain purposes as the true arch. In fact, the only objections to corbelling are that it makes a very thick roof and that correspondingly thick walls are necessary to take the great weight. Corbelling is certainly a very early form of roof; early man first built it with flat stones in lieu of bricks. In Sumer the earliest corbelled roofs all seem to have been made with stone, as at Ur[1] and at Kish, where a large drain corbelled with slabs of limestone is dated to before 3,000 B. C. It is my belief that the true arch is more likely to have been invented in a tree-less than in a well forested country, and we may, perhaps, postulate its origin in Sumer, in which country it was known from very early times.[2]

The curious method of building described on p. 164 has survived in Southern Balūchistān almost down to modern times. Sir Aurel Stein states that in the walls of the ruined fort of Sāka-kalāṭ in the Mashkai Valley, built by Sāka Khān some time ago, layers of small stones alternate with courses of mud-brick or stamped clay.[3] The small stones take the place of the potsherds or broken brick of Mohenjo-daro, and mud-brick that of burnt brick; both potsherds and broken brick were, of course, obtainable in almost unlimited quantities at the latter site. It is interesting to see a method of building persisting from roughly 2,500 B. C. down to practically modern times, though as yet we have no examples of its use between the two periods.

Circular pavements with a central hollow as in Block 2, house II, of the DK Area (see p. 61) have also been unearthed at Harappā. In the centre of one Mr. Vats found a small quantity of burnt wheat and other seeds, together with some charred animal bones.[4] It seems possible, therefore, that these circular constructions served for hulling grain, or grinding it on a quern.

[1] Woolley, *Antiquaries Journal*, vol. VIII, p. 430. According to Elliot Smith, Reisner states that the first corbelled arch made in Egypt was that in the tomb of Perabsen, or of Khasekhemui, of the Second Dynasty: *Human History*, p. 402. Woolley gives further information in *Ur Excavations, II, The Royal Cemetery*, pp. 228-9.

[2] The earliest example known in Egypt dates from the Third Dynasty: Garstang, *Mahāsna and Bet Khollâf*, p. 9. For the arch in Egypt, see Clarke and Engelbach, *Ancient Egyptian Masonry*, chap. XVII.

[3] Stein, *An Archæological Tour in Gedrosia*, p. 165.

[4] *Ann. Rep. Arch. Surv. Ind.* (1928-29), p. 79, pl. XXX (*a*).

The privies of Mohenjo-daro (Pls. XII, b and d; XXII, 1) and especially the last are extraordinarily like those unearthed by Frankfort in an Akkadian building at Tell Asmar in Mesopotamia.[1] There is the same paved room and the high recess at one end, cut in two by the drain-hole through which the effluents passed away. Three of these offices have been found at Tell Asmar, and we illustrate two. Another was found by Rai Bahadur Daya Ram Sahni in the HR Area, also at a high level.[2] Practically the only difference between the Babylonian privies and those of Mohenjo-daro is that a vaulted drain lay below the paving of the former, whereas at Mohenjo-daro the drains are open and empty directly into a channel in the street outside. There would seem to be but little difference in date between the Akkadian and the Indian examples.

The earthen drain-pipe illustrated in Pls. CVIII, 30; CX, 35, is now paralleled by several that were found in the Gimil-Sin temple at Tell Asmar.[3] The latter are, however, 300 years or more later than the Indian examples.

Where the curious mode of ornamenting jars with knobs originated, it is impossible to say. On p. 208, I mention that Frankfort has found examples of this ware at Tell Asmar,[4] but apparently it does not appear again in either Sumer or Elam until Sassanian times; a bowl in this technique has lately been found in a Sassanian villa at Kish.[5] It should be pointed out here that both in shape and mode of decoration this bowl is identical with one found by Mr. N. G. Majumdar in the upper levels of the mound at Jhukar with other pottery, of which some was painted in polychrome.[6] This pottery Mr. Majumdar terms Indo-Sassanian.

It would seem that stuck-on knobs were sparsely used in the decoration of some of the pottery of Susa I,[7] and certain sherds from level 5 at Nineveh are decorated, sparingly it is true, with rounded knobs—a mode of decoration that appears to have commenced in the preceding period.[8] In Europe, also, this curious ware occurs from very early times; for instance, it is quite common in Malta where it dates from the Neolithic Age.[9] It is also known from Neolithic Italy,[10] and is a feature of the Thessalian pottery of the First Period[11] and of early Danubian ware.[12]

[1] *Tell Asmar, Khafaje and Khorsabad*, II, p. 36, fig. 23.

[2] *Mohenjo-daro and the Indus Civilization*, p. 207, fig. 10.

[3] Frankfort, *Tell Asmar, Khafaje and Khorsabad*, II, p. 21, fig. 14.

[4] *Op. cit.*, p. 52.

[5] *Ill. Lond. News*, Aug. 19, 1933, p. 289, fig. 11.

[6] *Ann. Rep. Arch. Surv. Ind.* (1927-8), pl. XXX, fig. 14, Jhukar is some 16 miles north of Mohenjo-daro. *Explorations in Sind*, Mem., Arch. Surv. Ind., No. 48, pp. 5-18, pl. XIII, 9.

[7] A sherd in the Ashmolean Museum, Oxford. *Mém. Dél. en Perse*, t. XIII, pl. XXIX, fig. 1.

[8] Campbell Thompson and Mallowan, *British Museum Excavations at Nineveh* (1931-32), p. 165, pl. LXIII, 7. No. 5 level is said to date to the beginning of the third millennium, B. C.

[9] Called "Studded Ware": T. Zammit. *Bulletin Malta Museum*, vol. I, No. 1, p. 21, fig. 13. Both round and oval pellets were used, as well as spines. See also *Archæologia*, vol. LXX, pp. 199, 200, pl. XVII; *Liv. Ann. Arch. Anthrop.*, vol. III, Nos. 1 and 2, pls. V, VII.

[10] Peet, *Stone and Bronze Ages in Italy*, p. 117, pl. II, figs. 6, 7.

[11] *Camb. Anc. Hist.*, vol. I (plates), p. 96.

[12] Childe, *Danube in Prehistory*, pp. 36, 39, 81, 120, figs. 18, 72.

Later examples occur in the Lausitz Culture,[1] and Sir Aurel Stein has found examples at Nriya in Khotan.[2] Thus it will be seen that knobbed pottery has a very wide geographical as well as a long chronological range. The European and Northern Mesopotamian examples are unlike those from Mohenjo-daro in that the knobs, which are generally flattened, were put on as separate pellets of clay, whereas the knobs on the early as well as late Indian examples appear to have been applied as drops with some instrument, which may have been a reed. In the knobbed ware of Mohenjo-daro there is little decorative value owing to the knobs being set so closely together; but what other purpose they served it is difficult to say, unless it were to afford a better grip of the vessel, though this seems to be needless in a jar so small and light.

That this mode of decoration is an imitation of rivetted metal work is unlikely in the examples from Mohenjo-daro, though it might well be so in those European examples where the knobs are flat and not set so closely together. With a great deal of diffidence I would suggest that the knobs on the Indian ware and perhaps also on that of other countries may be intended to represent human breasts, and that the vessels so decorated were perhaps used exclusively for milk. If this surmise be accepted, it is permissible to infer that these vessels were used in some special rite, which perhaps explains why they are so rarely found.

"Reserved slip" ware is reported by Mallowan to occur in Ninevite 4 level at Nineveh; *i.e.*, at the end of the Jemdet Nasr Period, but definitely prior to the time of the Royal Cemetery of Ur.[3] He states that it has also been found at Warka. As explained on p. 184, at Mohenjo-daro this kind of ware, of which sherds only have been found, comes from a low level. Even so, these sherds are later in date than the examples from Northern Mesopotamia and Sumer. There is a bare possibility that the Indian sherds may have been intrusions from a yet lower level; but only prolonged deep digging at Mohenjo-daro would settle this point.

The painted sherd, Pl. CXII, 7, which comes from a deep stratum (pp. 42-5) bears a somewhat unusual pattern in black on red. This pattern is duplicated at Nineveh, where Mallowan has found several examples of it in his Ninevite 2 level.[4] These "running verticals", as they have been termed, are, I should imagine, derived from cord slings. There is, however, a very considerable difference in date between the Indian sherd and those from Nineveh; the latter are stated to be considerably older. Probably the occurrence of the pattern at both sites is fortuitous, the motif being derived independently from cord netting.

The skirl pattern on the incised sherd illustrated in Pl. LXVII, 22, is exactly duplicated on pottery sherds found by Sir Aurel Stein at Mehī-damb in the Mashkai Valley, Southern Balūchistān.[5] In each case this incised motif,

[1] *Antiquity*, vol. II, p. 37.

[2] Stein, *Ancient Khotan*, vol. II, pl. LXXIV.

[3] *British Museum Excavations at Nineveh* (1931-2), p. 167.

[4] *Op. cit.*, pl. XXXVIII, figs. 4, 12, 17.

[5] *An Archæological Tour in Gedrosia*, p. 160, pl. XXX, Mehī, II, 4. 4.

described as a swirl by Sir Aurel Stein, is found as at Mohenjo-daro in the centre of the inside of a dish or bowl. In the Mehī specimens this design occurs on painted pottery, whereas the examples from Mohenjo-daro are always incised on unpainted vessels or those with a coarse red wash.

Much of the black-on-red ware of Mehī is certainly reminiscent of the black-on-red ware from Mohenjo-daro, and some of the motifs are the same, as, for instance, the *pipal* leaf and the comb motif (Pl. XXX, Mehī, II, 4·5), whereas other motifs like the animals in file (Pls. XX ; XXIX) do not appear on the wares of Mohenjo-daro.

We can perhaps attribute the animal file motif[1] to western influence ; it is found throughout the whole of Mesopotamia as far north as Nineveh, as well as at Susa and sites in Northern Persia. That the Mehī ware is earlier than the Mohenjo-daro ware, though perhaps only slightly so, is indicated by the discovery by Stein of a copper pin with lapis-lazuli head (Pl. XXXII, Mehī, III, 6·9) with a cremated body, while small fragments of painted pottery found with the ashes suggest that "the ground was already covered with potsherds at the time when the cremation and burial took place".[2] The copper pin, which is 4·5 ins. long, is exactly the same type as has been unearthed from the "A" cemetery at Kish,[3] from the Royal Cemetery at Ur,[4] and at Susa.[5] No pins of this type are known at Mohenjo-daro or Harappā, and they seem to be purely Sumerian. That the pin found at Mehī-damb was imported seems to be without question. It is therefore valuable as a dating point, for the "A" cemetery is dated as between 2,750 and 2,500 B. C. The painted pottery of the Mehī mound may be slightly earlier, or, indeed, about the same date, for there was possibly no long interval of time between the desertion of that mound and the cremated burial that took place with others in it. The fact that an incised design of a somewhat complex and unusual pattern is found only at Mehī and Mohenjo-daro[6] certainly seems to indicate that there was no appreciable interval of time between the two cultures.

It is noteworthy that no pottery female figurines of the type found at Mohenjo-daro and Harappā, some 400 miles apart, are found at the sites in Balūchistān. The figurines of the latter country are radically different in appearance from those of the Indus valley. In Southern Balūchistān, for instance, the figurines from the Mehī site examined by Sir Aurel Stein[7] invariably end in a flattened piece below the waist ; they are more primitive in make, for the mouth is not indicated, and the hands and arms instead of hanging

[1] This motif has survived at Mohenjo-daro on certain clay amulets which would not be so subject to change of fashion as the pottery.

[2] *An Archæological Tour in Gedrosia*, p. 158.

[3] Mackay, *Anthropology Memoirs*, Field Museum, Chicago, pls. IV, 9–12 ; XL, 1–5.

[4] Woolley, *Antiquaries Journal*, vol. VIII, p. 442. *Museum Journal*, Philadelphia, vol. XIX, p. 13. *Royal Cemetery*, pls. 145, 154, 231.

[5] *Mém. Dél. en Perse*, t. VIII, p. 146, fig. 298.

[6] I do not know if this design appears on the Harappā ware. Majumdar has found incised sherds with this same pattern at three new sites in Sindh, all of the Indus Valley culture. *Explorations in Sind*, pl. XXXI, 10, 15, 16.

[7] *An Archæological Tour in Gedrosia*, pp. 161-2, pl. XXXI.

straight down at the sides are drawn up and sometimes touch the breasts.[1] The same methods, however, are evident in the representation of the jewellery that adorns these figures by means of pellets of clay, and in the use of pellets for the eyes which, as occasionally at Mohenjo-daro also, are incised to indicate the pupils. At Mehī the fingers of the hands are carefully indicated, whereas at Mohenjo-daro they rarely are; and at Mehī we miss the elaborate head-dress that forms such a distinctive feature of the Indus Valley figurines. Yet we must assume that the Mehī figurines, which are regarded by Sir Aurel Stein as representing a mother-goddess, do represent the same or a goddess similar to the one worshipped in the Indus valley.

Few figurines have as yet been found in the ancient sites of Northern Balūchistān,[2] and those few are mostly too imperfect for comparison with the Indus Valley figurines, though incised pellets were used to represent eyes and jewellery and the mouth is sometimes indicated, but never with the realism of the Indus Valley figures.

It may well be that the technique of modelling in clay was better understood in ancient Sindh and the Panjāb than in the wilds of Balūchistān, where living, and, in consequence, the culture, was more precarious. The civilization of the latter country was evidently not so homogeneous as further east, no doubt owing to the aridity of the soil, and perhaps to tribal prejudices which prevented cohesion among the peoples living in that region.

In a brief discussion of *bifrons* or two-faced figures, Ward, quoting Menant, states that on Sumerian seals they are merely a conventional device to show that respect or attention is being paid to the deity on one hand and on the other to a personage brought before the god. He points out that this two-faced figure also occurs on Hittite seals.[3] It can hardly be suggested that the two-faced figure from Mohenjo-daro (LXXVI, 8; p. 280) embodied the same idea. This two-faced figure in the round can only be that of a deity. Possibly the bifrons figures on the Hittite and Sumerian seals were also deities, or at all events priestly representations of a deity—a supposition which is borne out by one of these figures being horned. It seems likely that these two-faced figures from Sumer and India were allied in some way. At all events, it is as well to bear in mind that one god, at least, in Indian mythology is represented with three, four and sometimes five faces, and that one of the seals (Pl. C, fig. F) bears a three-faced figure which Sir John Marshall identifies with Śiva. Representations of two-faced gods are, I understand, unknown in historic India.

According to Hornblower, dwarfs were often associated with the worship of the Mother-goddess in Egypt;[4] in two of the Pyramid texts of the Sixth Dynasty both Pepy and Mer-en-Ra identified themselves for religious purposes with the pygmy.[5] Dwarf figures are also sometimes associated with Śiva

[1] There appears to be some Western influence in this particular attitude.

[2] Stein, *An Archæological Tour in Wazīristān and Northern Balūchistān*, pls. IX; XII; XVI.

[3] *Seal Cylinders of Western Asia*, pp. 103, 280, fig. 854; 379, fig. 29.

[4] *Journ. Eg. Arch.*, vol. XV, p. 32.

[5] Budge, *The Egyptians Sudan*, vol. I, p. 524. See also Lansing, *Bull. Metro. Mus., New York*, II, 1934, pp. 32-4, figs. 31-3. The attitude of these little ivory dancers from Lisht, Egypt, is the same as that of some of the Indian figures.

worship and are said to represent various *gaṇas*.[1] Bandy-legged dwarfs appear on Sumerian seals in association with a seated god and worshippers[2] or with a nude female deity, probably the Mother-goddess; and it may have been thought that they existed in the Sumerian after-life as well as for the amusement of others in the temples and palaces of Sumer. The little bandy-legged figures from Mohenjo-daro also (Pls. LXXIII, 1, 8; LXXV, 11, 13; LXXVI, II) may have been associated in some way with the worship of the Mother-goddess, but we must await further evidence before being definite on this point.

The peculiar white coating on the seals (p. 346) is, according to Beck, due to chemical treatment by the application of an alkali and great heat.[3] Steatite beads that had been similarly treated were found in the lower levels at Nineveh (Nin. 2, 3 and 4), ranging in date from 4,000 B. C. or earlier well-nigh down to 3,000 B. C. It would seem, therefore, that this method of whitening steatite did not originate in India, though we cannot be certain on this point until yet earlier Indian sites have been excavated. A cylinder seal treated in this manner though found at a comparatively high level at Nineveh is certainly archaic in style; as it is obviously Mesopotamian work, it can hardly be claimed that the beads were importations into Sumer.[4]

The Greek cross on Seal 1 in Pl. LXXXIII and Seal 156 in Pl. LXXXVI has already been shown in the earlier book on Mohenjo-daro to be a very early emblem in both Sumer and Elam. It only appears, however, on the early etched carnelian beads, from whatever source, in the stepped form, and curiously enough this same form recurs very much later on a bead from India that is dated to c. 300 B. C. to 200 A. D.[5] Though the Greek cross is quite commonly depicted on the early pottery and seals of both Sumer and Elam, it is very rare in Egypt; as far as I can ascertain at present, it occurs only on a few buttons which we are told are early and foreign to Egypt.[6] This form of cross appears amongst the Minoan signs, and also as a pattern on the dress of the "cup bearer" in a fresco in the Propylaeum at Knossos;[7] in the latter case the crosses intersect to form a continuous pattern in much the same way as the design on a silver ring from Mohenjo-daro.[8] The Greek cross is also incised on spindle whorls from the lowest levels at Troy and on painted pottery of the Laconian Period from the Acropolis, Sparta.[9] In this last example the intersecting lines in the centre of the cross may be a survival of the four-petalled rosette in the

[1] *Indian Antiquary*, Jan. 1929, p. 19.

[2] Ward, *Seal Cylinders of Western Asia*, pp. 113, fig. 313; 117, fig. 336; 161, figs. 424, 428; 172, fig. 462.

[3] *British Museum Excavations at Nineveh* (1931-2), p. 181.

[4] *Ibid.*

[5] H. Beck, *Antiquaries Journal*, vol. XIII, p. 391, pl. LXVIII, fig. 2, z; pl. LXXI, B. 28.

[6] Petrie, *Button and Design Scarabs*, pl. VI, fig. 224 a.

[7] Evans, *Palace of Minos*, II, pl. XII, L.M.I. Period. A very similar pattern appears on the kilt of a man in the Procession Fresco (p. 729, fig. 456 (*d*)), and also at Mykenae: Petrie, *Decorative Patterns*, pl. LVII, F. 8.

[8] *Mohenjo-daro and the Indus Civilization*, pl. CXLVIII, A, 13. *Antiquity*, vol. V, p. 549, 464-5.

[9] Droop, *B. S. A.*, vol. XXVIII, (1926-27), p. 52, fig. 1.

centres of some of the Greek crosses on seals from Susa.[1] The cross with intersecting lines in the centre seen in Pl. LXXXIII, 1, is more like the variety found at Grecian sites than any of the other examples cited; but it might be a simple modification of the double Greek cross (one inside the other) which is the form most frequently found in Elam in very early times.[2]

Perhaps the most interesting comparison of this motif with a western example is with the cross on a steatite seal from Tsani Maghula in Northern Greece, which is dated to the First Period of the Neolithic Age.[3] This specimen is a double or framed cross with intersecting lines in the centre exactly like an example on a seal from the earlier excavations at Mohenjo-daro.[4] Indeed, the resemblance is so close that it seems to me unlikely that these crosses were of independent origin; and it is permissible to surmise that it arrived in Greece from Elam, or perhaps yet further East, with Anatolia or Syria as a stepping-stone, though at present I can find no actual evidence of the use of this form of cross in either of these last two countries.

Sir Arthur Evans regards the Greek or equal-armed cross as the "simplest form of the star-sign" and a "general indication of divinity"; and he further states that it was the symbol of the Great Minoan Goddess in her chthonic aspect.[5] At Mohenjo-daro the Greek cross appears to have no special association with serpent-worship; nor is there any evidence that it was especially associated with the Mother-goddess of the Indus valley. At both Mohenjo-daro and Harappā,[6] it is, indeed, rare as compared with the svastika and trefoil, a fact which inclines me to think that the device was borrowed—probably from Elam where it was more frequently used than anywhere else throughout a very long period. The occurrence of a Greek cross on a stone seal found in Balūchistān by Sir Aurel Stein points to some interest in the motif in that country, but it may have been taken there from the Indus valley together with the pottery of characteristic Indus Valley make[7] that has been unearthed there, or it may have arrived there from the opposite direction. If, indeed, the Greek cross was regarded at Mohenjo-daro as a star sign, it would be of great interest, for in conjunction with the solar sign on Seal 641 in Pl. XCVII it would perhaps indicate an astral element in the religion of the Indus Valley people.

I have pointed out on p. 34[1] that the human figure with a steering oar on the poop of the boat on a seal (Pls. LXXXIII, 30; LXXXIX, A) was purposely represented as high off the seat so as to avoid confusion between the figure and the seat; and it is interesting to see exactly the same arrangement

[1] *Mém. Dél. en Perse*, t. 16, pl. XXI, fig. 314.

[2] The same double cross is frequent on pottery from the Mimbres valley, New Mexico, which may date back as far as 2,000 B. C. and ceased to exist c. 600 A. D.

[3] Wace and Thompson, *Prehistoric Thessaly*, p. 149, fig. 93. The back of this particular seal is not shown, but it is said to have a bored knob. See also F. Matz, *Die Frühkretischen Siegel*, pl. IV, fig. 8.

[4] *Mohenjo-daro and the Indus Civilization*, pl. CXIV, 528, b.

[5] *Palace of Minos*, I, pp. 514-7.

[6] It has been found at the latter side painted on pottery as well as incised upon seals.

[7] *Northern Balūchistān*, p. 60; pl. XVI, D. N. d. 28. There seems, however, a little uncertainty as to its date, as glass objects occurred in the same trench with it.

on archaic seals from Sumer and Susa.[1] The cabin or shrine in the middle of this boat appears to be gaily decorated with streamers in two rows. I have seen the cabins of the Indus boats of to-day similarly decorated and I was told that it was only done for festivals and other special occasions.

A boat with a mast, scratched on a potsherd, which is reproduced in line in Pl. LXIX, 4, is sailing in the other direction from the boat on the seal: and until we have many more illustrations of boats we cannot know whether the river-folk of the Indus in ancient days orientated themselves from the north, or from the south as did the Predynastic boatmen of the Nile.[2]

The back of the "boat" seal is roughly scored with lines so arranged that they form a number of irregular rectangles or squares (Pl. LXXXIII, 36). In the first book on Mohenjo-daro I pointed out that this rude design occurs on very early seals from Sumer and Elam, and in Crete and Egypt.[3] It is, therefore of special interest to find that this cross-hatching is the main device on a series of black steatite seals from Arpachiyah, a site near Nineveh, and that Mallowan attributes them to a still earlier date than the earliest of the kind hitherto found in Sumer, proof that these objects were seals being afforded by numerous sealings bearing the same pattern. Mallowan suggests that this cross-hatching was used before writing was sufficiently simple to be used on the seals.[4]

Early figures of the Sumerian hero Gilgamesh, whose counterpart appears on Seals 75, 86, 122 and 454, always show him in profile, with wild locks and no beard, and naked or girt solely with a belt.[5] All these features are to be observed in the figure on the finest of these seals, No. 75. Gilgamesh was the semi-human, semi-divine consort of the Sumerian Mother-goddess,[6] and is reputed to have been so strong that no wild animal could overcome him. His fame had evidently reached India, where his combats with wild animals and his association with a mother-goddess were doubtless appreciated. The four seals on which this nude figure appears are most certainly of Indian workmanship and not imports, but the scene engraved upon them is equally certainly of Sumerian, if not even earlier origin. We appear to have, then, two Sumerian demi-gods or their equivalents portrayed on ancient Indian seals, Gilgamesh and his friend Enkidu who appears on an earlier found seal from Mohenjo-daro, nude and with horns, wrestling with a horned tiger.[7]

The tiger, as we have seen, is the only feline represented in the Indus Valley art, whereas it is always the lion that appears in the art of Elam and Sumer, despite the fact that the tiger is still to be found in the forests of the

[1] *Mém. Dél. en Perse*, t. VIII, p. 23, fig. 4; Ward. *Seal Cylinders of Western Asia*, fig. 104.

[2] Schweinfurth, Ornamentik der ältesten Culture-Epoche Aegyptens, *Verhandlungen der b. Gesellsch. für Anthropologie, Ethnologie und Urgeschichte*, 1897, p. 400.

[3] *Mohenjo-daro and the Indus Civilization*, p. 375.

[4] *Prehistoric Assyria*, pls. VI–VIII, pp. 90-99.

[5] Legrain, *Museum Journal*, Philadelphia, vol. XIX, No. 3, p. 242.

[6] Smith states that he was two-thirds god, one-third man: *Early History of Assyria*, p. 34.

[7] *Mohenjo-daro and the Indus Civilization*, pl. CXI, p. 357.

Elburz and along the southern margin of the Caspian Sea. In all probability deforestation is the cause of its practical disappearance from Persia as well as from Sindh and the Panjāb. For the present we may assume that the lion was unknown to the people of the Indus valley; but even if it were, the tiger as being a more ferocious animal was perhaps selected as the more fitting emblem for a deity.

With regard to the now well-known scene of a man in a tree watched by a tiger (Pls. XC, 23, b; XCVI, 522) a not infrequent device on the seals and amulets of Mohenjo-daro, Brigadier-General Burton states that not many years ago not far from Bombay a man-eater waited for his victim who had climbed a tree, and captured him when he at last descended thinking that the beast had departed.[1] But though this scene may, of course, represent a similar episode that happened some five thousand years ago, I am still inclined to think that its interpretation is not quite so simple. Exactly the same scene appears on the seals and sealings of Harappā and it was evidently not a purely local legend.

In the finest representation of a tiger that we have found (Pl. LXXXVII, 259), the stripes are indicated with unnatural regularity, each with a hollow interior, whereas they vary in shape on the actual animal. Nevertheless, the engraver must have been well acquainted with the animal, for the folds of skin in the upper jaw, caused by the opening of the mouth, are indicated with great realism.

The curious skirl device on the seal illustrated in Pls. XCVIII, 641; C (G) is similar to the device painted on the inside of certain bowls from Shāhī-tump in Balūchistān,[2] which have four, five or six curvilinear arms. There is little doubt that the same device is intended on both the pottery and the seal, though on the latter it is further elaborated by the addition of an animal's head to take the place of one of the arms. The ware from Shāhī-tump is considered to be older than that of Mohenjo-daro; both Sir Aurel Stein and Professor Childe regard it as closely allied to the pottery of Susa I.[3]

The frequency of this skirl motif on the Balūchistān ware as represented at Shāhī-tump implies that the device was regarded there as of especial importance;[4] and the rarity of the motif at Mohenjo-daro and Harappā shows perhaps that its significance had greaty lessened in later times. Exactly the same idea is expressed in the motif on a seal found some years ago, where the heads and necks of various animals form the six arms of a skirl.[5]

It may be that the deities that are probably represented by the animals on this seal were equal in standing, for in this motif no one takes precedence over another, and the design was perhaps purposely so contrived. On the other hand, on the later found seal the urus-like animal alone appears, and it will be remembered that it takes the most prominent place on all the seals

[1] *The Book of the Tiger*, chap. IV.

[2] Stein, *An Archæological Tour in Gedrosia*, pls. XV, XVI.

[3] *Op. cit.*, p. 99. *Ancient Egypt and the East*, 1933, p. 24.

[4] Its occurrence on specially made funerary ware also suggests that the design was regarded as being in some way beneficial to the dead.

[5] *Mohenjo-daro and the Indus Civilization*, pl. CXII, 383. The motif on Seal 386 in the same plate may be allied to it.

in point of numbers. I am not alone in thinking that the skirl device, wherever it may appear, is a solar symbol,[1] but I should hesitate to say that the animals associated with these signs on the seals of Mohenjo-daro represented solar deities.

Skirl devices are in use at the present day in the Bengal and Madras Presidencies, and Mrs. H. G. Durai and Mrs. Biren Bonnerjea give illustrations of some of them.[2] They are marked with rice flour on the walls and floors of houses and in the Madras Presidency ground quartz is sometimes used. They are also frequently traced on prepared ground in the front of the house, some for every day and others for special occasions such as marriages or festivals. Their exact significance has not yet been satisfactorily explained, but they are generally thought to have some magical value. Their presence on floors, whether inside or outside houses, was and perhaps is still thought efficacious in warding off evil spirits. Plant motifs appear to predominate, and three of the skirls illustrated in the two contributions to *Man* have lotus flowers at the extremity of each curved arm.[3]

It is of the utmost interest to see the survival of an ancient amuletic motif in modern India, albeit a little altered, and I have no doubt that if such designs were collected and published, we should find them to have a very wide range in both ancient and modern times. For instance, the interior cross motif of a design framed by an interlacing device, which is illustrated by Mrs. Durai,[4] is not at all unlike the complex cross motif on certain faience tablets from Mohenjo-daro (Pl. XC, 21, 22). I have already pointed out on p. 354 that certain interlacing patterns are also well known in Sumer, but as far as I am aware at present the skirl does not occur in that country. It was at first thought that such designs were possibly derived from string figures, but no string figures that I have seen in any way approach the designs used in both ancient and modern India.[5] We can, therefore, conclude that both skirls and interlacing motifs still have a backing of religion and that, more probably than not, they are used for talismanic purposes, as they certainly were in ancient India, since at Mohenjo-daro they occur on amulets and seals and on one bead amulet.

On p. 362 I suggested that in the scene of a man apparently being tossed by a bull or, more probably, a buffalo, the animal was perhaps the guardian of a shrine. An alternative suggestion is that the man on this amulet (Pls. CII, 5a ; CIII, 8) is vaulting over the animal in the manner frequently pictured

[1] See P. E. Dumont in *Journ. Amer. Orient. Soc.*, vol. 53, No. 4, pp. 331-2, who suggests other parallels, such as the Lycian coins of the Achaemenian Period ; for which, see L. Legrain, *The Culture of the Babylonians*, 1925, pl. LV, figs. 877, 882, 883, 885.

[2] *Geometrical Designs of Madras Presidency* and *Note on Geometrical Ritual Designs in India* : *Man*, 1929, pl. E, sect. 60 ; 1933, sect. 168.

[3] In Egypt the lotus was closely connected with the young Sun-god, and it was worn as a head-dress by several minor deities who were also endowed with the attributes of the Sun-god : A. Wiedemann, *Religion of the Ancient Egyptians*, pp. 138, 167. See also Carter, *Tomb of Tut-ankh-Amen*, vol. III, pl. I. I have not been able to ascertain whether there was any association of the lotus with the sun in Indian mythology.

[4] *Man*, 1929, pl. E.

[5] String figures are, I am told, not very popular in India.

in Cretan art, where the feat was performed in honour of the Great Minoan Goddess. I can find no reference to such sports in India, either religious or secular, but certain bas-reliefs on the Royal Palace of Angkor in Northern Cambodia, I am told, represent a sport of wrestling with and vaulting over the water-buffalo. As these reliefs were cut by a race that in the past came from India, it is conceivable that sports of this kind once took place in that country, and that our amulet represents something of the kind. If so, the shrine beside the tree indicates that it was of a religious nature.

The angular twist on the clay amulet that is shown in Pl. XC, 23, 24, is very much like a certain design that appears on a Proto-Elamite tablet from Susa,[1] except that the former is double. Both are strictly angular and in this respect differ from the curvilinear design on the bead in Pl. LXXXII, 3. It is possible that these designs were originally marked out by means of points around which a cord or string was carried; in this same way the above mentioned interlacing patterns are made for the decoration of walls and thresholds in Eastern and Southern India to-day.[2] On dissection both the ancient designs appear to have been derived from the Maltese cross motif, which, as I have said, frequently occurs on the very early pottery of Susa and Samarra,[3] and more sparingly on that of Mohenjo-daro.[4] In fact, the Maltese cross appears on some of the Samarra pottery to be confused with the svastika,[5] which is quite a different symbol.

There is a possibility that some at least of the saddle-querns, illustrated in Pls. CIV, 13, 14; CVIII, 27, 31, 34, were mounted on wooden frames to keep them out of the dirt. A very good model of such a contrivance is to be seen in the Edwards Collection at University College, London, but the most convincing example is that from the tomb of Tut-ankh-Amen, where a funerary model of a quern and muller in yellow quartzite stands in a wooden frame with a trough beneath to receive the meal.[6] Among the poorer people at Mohenjo-daro querns were doubtless set direct on the ground or on a mat or tray, in the first case with a hole in the floor in front, perhaps containing a jar, to receive the flour.

One (DK 10259) of the eleven weights made of a hard, black and white mottled stone in the tabulation at the end of Chapter XVII (p. 612) has recently been submitted for examination to the Director of the Geological Survey of India. He states that it "is a fine grained amphibole-schist of specific gravity 3·012; it is composed of a green, strongly pleochroic amphibole felspar (refractive index about 1·545 to 1·55) and quartz together with rare flakes of biotite, Amphibole-schists are common rocks in the archaeans of Rājputāna and are not characteristic of any place in particuiar." It seems therefore quite certain that these black and white weights are not importations into India from some other country; moreover, none of them is aberrant in weight.

[1] *Mém. Dél. en Perse*, t. XVII, p. 67, fig. 428.

[2] Mrs. H. G. Durai, *Man*, 1929, sect. 60.

[3] It is also found in early Crete, and on the spindle-whorls from the deeper levels at Troy.

[4] *Mohenjo-daro and the Indus Civilization*, pl. XCI, 7.

[5] Herzfeld, *Samarra*, V, p. 21, figs. 23, 25; p. 22, fig. 26; p. 23, fig. 27.

[6] Carter, *Tomb of Tut-ankh-Amen*, vol. III, pl. LXV, B.

Tubular drills made of cane such as, it is thought, were used at Mohenjo-daro (p. 323) were also employed with sand as an abrasive by the Nahuatl tribes of Mexico before the Spanish occupation. Similar drills were used in Neolithic times in Crete,[1] and made in copper they were in common use in Egypt, especially in the early dynasties, for porphyry and other hard stones, which were as successfully cut as the softer rocks. The preliminary shaping of statues, *e.g.*, the fine diorite figure of Khafra, was done with the aid of a drill of this kind, whose diameter in this case was nearly two inches.[2] The granite sarcophagus of Khufu also was fashioned by means of a tube-drill.[3] The first tubular drills were hollow canes or bamboos, but later the more efficient copper drill was substituted; and the softer the metal and the finer the abrasive, the more clean would have been the work. We may infer that the tubular drill was invented as a result of experimenting with fire-drills.

Another kind of drill that was used at Mohenjo-daro was the centre-bit, for work in which deep cutting was not required. The circles with a central pitting that so commonly ornament the ivory sticks and dice (Pls. CXXV; CXXXVIII), and seals (Pl. LXXXVI, 156), and beads (Pl. CXXXVIII, 1–3) were all made with centre-bits, some of which must have been toothed, to produce a series of concentric circles. Possibly a similar toothed centre-bit was used in making the beads illustrated in Pl. CXXXVIII, 27–9, but I am inclined to think that the grooves on these beads are due to the lathe.

On p. 454 I suggested that the U-shaped signs in figs. 2 and 5, Pl. CXXVI, may represent tens, and the strokes digits.[4] The U-shaped sign also appears on some of the Proto-Elamite tablets from Susa, where according to Scheil it represents a fraction or one-half.[5] It is difficult, however, to see how this sign could possibly denote one-half on the inscribed tools and weapons from Mohenjo-daro, since the grouping of these signs suggests that they had a high and certainly not a fractional value.

Some of the other signs upon these tools are new to us. The uppermost sign of No. 3 in the plate evidently depicts an arrow, which does not appear amongst the signs on the seals, but as it is engraved only on this one blade it is not justifiable to infer that it was some kind of government mark like our broad-arrow.

It should be made quite clear that these signs and figures are incised only; the white was used merely to show them up in the photographs.

That model weapons were made for funerary purposes seems the more probable since Hargreaves found in a burial at Nāl a fragment of an earthenware vessel that had been worked to imitate a copper tool.[6] Professor

[1] Evans, *Palace of Minos*, II, p. 15.

[2] Clarke and Engelbach, *Ancient Egyptian Masonry*, p. 202.

[3] *Ancient Egypt*, 1927, p. 58.

[4] From the manner in which they are arranged it is possible that the eleven strokes on the blade in pl. CXXVII, 1, were not intended to be read consecutively.

[5] *Mém. Dél. en Perse*, t. VI, p. 116.

[6] *Mem. Arch. Surv. Ind.*, No. 35, Pl. XXI, 16; p. 28.

Childe regards the Nāl culture as parallel with the Indus Valley culture of Mohenjo-daro and Harappā, and a development from the older Amri culture.[1] Clay models of weapons, also possibly made for grave equipment, are known in Sumer from the Pre-flood Period of Ur[2] down to Early Dynastic times; and a well made example from the First Period of Susa implies that funerary model weapons were used there also.[3] As tools and weapons of pottery and wood are also not uncommon in the prehistoric graves of Egypt and even Hungary, the geographical range of this custom was very wide. These models were doubtless provided for reasons of economy, the substitute being considered to serve exactly the same purpose as the real article, a belief that continues in China at the present day.

On p. 502 I have pointed out that amongst the unfinished beads found at Mohenjo-daro some had been partially shaped though not yet bored. This order of procedure has been noted elsewhere in India; a number of beads, including etched carnelians unbored but otherwise finished, have been found at the site of a bead manufactory at Sabaur in the Bihār district, and are provisionally dated to the beginning of the Christian era.[4]

In the section on the long barrel-cylinder beads of translucent red carnelian,[5] I drew attention to the very careful polish of the interiors of the holes. This polish was not simply unnecessary finish; it was intended to prevent the hole being unduly apparent through the substance of the bead. If its interior had been left rough, it would have appeared as an unsightly white line. How this interior polishing was done we are uncertain; it must have added considerably to the cost of the bead. I would suggest that the bead was threaded on a loose cord plentifully coated with a very fine abrasive, such as red oxide of iron, and pulled to and fro along it; this process would have produced the slight enlargement of the ends of the holes. The cord could not have been thick; in a few cases the two holes drilled from either end had not met accurately in the middle of the bead and threading would have been difficult. Besides improving the appearance of a bead, this interior polish had the advantage of preventing the abrasion of the string on which the bead was eventually strung.

On p. 505 is mentioned a very unusual type of bead with black lines on a white ground (Pl. CXI, 4) which is the first example of its kind to be found at Mohenjo-daro. Beck now describes examples of the same technique from Ur and Tell Asmar in Sumer, from Taxila in India, and from the neighbourhood of Bāmpur in Persian Balūchistān.[6] He is inclined to think that copper was used to make the black lines, but from a close examination of the

[1] *Ancient Egypt and the East*, 1933, p. 25.

[2] *Antiquaries Journal*, vol. X, pl. XLVII, a.

[3] J. de Morgan, *Préhistoire Orientale*, t. III, p. 62.

[4] H. Beck, *Antiquaries Journal*, vol. XIII, p. 386. Also Woolley, *Royal Cemetery*, p. 373.

[5] *Mohenjo-daro and the Indus Civilization*, p. 511, and p. 511 of this book.

[6] *Antiquaries Journal*, vol. XIII, p. 389, pl. LXVI, figs. 5, 8, g: pp. 391, 393, 397; pl. LXVIII, fig. 1 (*b*).

fragmentary bead from Mohenjo-daro I suspect that manganese was the metal that was used.[1]

Gold discoid beads from the Royal Cemetery at Ur[2] are identical with beads found at Mohenjo-daro some years ago,[3] which were made in exactly the same way. It is difficult to argue anything from this, as the one country may have copied rather than imported from the other a very ornamental type of bead, one moreover, that could be very simply made. What is more important is that certain dark-green, long barrel-cylinder beads from Ur (presumably plasma)[4] are exactly like, though rather shorter than a bead found at Mohenjo-daro some time ago.[5] Beads of green chalcedony (known as plasma) are very rare at Mohenjo-daro though comparatively numerous at Ur. There may have been Persian sources for this stone as well as Indian, though their shape suggests that they were all made in one country.

Another type of bead from Ur which deserves attention is described by Beck as a V-shaped, flattened bead,[6] generally made of agate and forming the middle part of a necklace. This type of bead is so like in shape to one from Mohenjo-daro (Pl. CXI, 8) that as in the case of the gold beads already referred to the shape must have been copied. As I have already mentioned on p. 517, beads not unlike these in shape are known in Egypt of the Twelfth Dynasty. It is possible that in this case India borrowed from the west, especially as only one bead of this type is known to occur in ancient Sindh. The specimen from Mohenjo-daro is obviously not an importation; it is made of steatite and parts of it are stained with red, a technique at present peculiar to India.

Amongst the beads in this book I have described several examples of disc-cylindrical beads that were threaded on a copper tube (pp. 503-4; pls. CXI, 12; CXXXVI, 24; CXXXVIII, 11). In his recent book Woolley illustrates certain rods on which were threaded segments of shell and black steatite,[7] which he considers are the handles of sistra. If this suggestion should be correct, the somewhat similar rods found at Mohenjo-daro may have had a similar use, though they differ from the examples from Ur in being much less substantial. At all events it is permissible to class these copper tubes strung with beads of alternate colour as handles, and to leave the question of to what they were fixed for further investigation.

A steatite pendant found by Rai Bahādur Daya Ram Sahni at Harappā some years ago has carved upon it a device that is associated with both Sumer and Elam, namely, an eagle with widespread wings and extended legs.[8] This

[1] An analysis cannot well be made.

[2] Woolley, *Royal Cemetery*, p. 366, fig. 70 (16).

[3] *Mohenjo-daro and the Indus Civilization*, p. 515; pl. CXLIX, 7.

[4] *Royal Cemetery*, pl. 132.

[5] *Mohenjo-daro and the Indus Civilization*, p. 511. For the various sources of plasma, see p. 682. I should like here to correct my observation on p. 513 of this present book that these long barrel-cylinder beads differ slightly from the Mesopotamia examples. Some of them do, but many of the examples from Ur are exactly like those from Mohenjo-daro in shape.

[6] *Royal Cemetery*, p. 372, fig. 79.

[7] *Op. cit.*, pp. 260-1; pls. 103, 221.

[8] *Ann. Rep. Arch. Surv. Ind.*, pl. XVIII, 12. See also Childe, *The Aryans*, pl. VI.

mode of representing the eagle may, of course, have been independently devised in India and Sumer,[1] but it seems to me improbable that the peculiar attitude of the bird as portrayed on the Harappā pendant and in Sumerian art is mere coincidence. In some of the Sumerian examples the birds grasp the hind-quarters of various animals with their talons; there are also many examples where there is nothing in their claws.[2]

This device has a remote history. Possibly the earliest example of which we know is that painted on a sherd found in Iran by Professor Herzfeld, and ascribed by him to an earlier period than Susa I.[3] Judging from this sherd, this eagle motif may have originated in the Highlands of Persia and from there found its way into Sumer and India. Indeed, taking into consideration the fact that the device is exceedingly rare at Harappā and occurs but three or four times on seals from Mohenjo-daro,[4] and twice as amulets (Pls. LXXVII, 12; CXXV, 19) we may infer that it was introduced thither from either Sumer or Elam. That it appears also amongst the signs of the Indus Valley script does not invalidate this suggestion, for it is so rare as to seem of foreign origin.

Though this eagle motif is not seen on the pottery of Mohenjo-daro, an example is painted in chocolate-brown on a straw-coloured sherd of uncertain date in the Quetta Museum, labelled as coming from Dasht in Balūchistān.[5] The same device also occurs much further west on Minoan seals dated to before 2,500 B. C.[6]

The curious kink found in a certain type of bracelet, of which a fragmentary one is illustrated in Pl. CXL, 58,[7] is made either by turning in the ends of the bracelet or by bending the bracelet inwards midway in its length. When I stated on p. 535 that no other early examples of these particular bracelets are known, there had slipped from my mind a pair of silver ones belonging to a child that was found in the "A" cemetery at Kish, and which are now in the Ashmolean Museum, Oxford.[8] These bracelets are silver wire with the ends

[1] It is well known on some of the jewellery from Dashur in Egypt, which is dated to the Middle Empire. That it was independently used in other parts of the world is proved from its occurring as a fish-hawk on an ornament from one of the Solomon Islands. *Handbook to Ethnographical Collections* (1925), British Museum, p. 21

[2] Ward, *Seal Cylinders of Western Asia*, pp. 30-5.

[3] *Illust. Lon. News*, May 25, 1929. The motif is very common on the painted pottery of Susa I, but less frequent in later times.

[4] *Mohenjo-daro and the Indus Civilization*, possibly on Seal 312 and certainly on Seal 194. Examples occur on two seals in this book, Nos. 228 and 422.

[5] Two examples are pictured on a small vase from Pēriāno-Ghundai, Northern Balūchistān, where we should expect to find it on its way to India: Stein, *An Archæological Tour in Wazīristān and Northern Balūchistān*, pl. VII, P. C. 2.

[6] Hall, *Civilization of Greece in the Bronze Age*, p. 92, fig. 105.

[7] Unfortunately this broken bracelet has been photographed in such a way as not to show this kink clearly. Bracelets of this kind are better illustrated in *Mohenjo-daro and the Indus Civilization*, pls. CXLIV, 9; CLXIV, a and b.

[8] I did not pay any particular attention to these bracelets at the time because I thought they had been bent by earth-pressure. One of the two has since been cleaned and its ornamented ends brought to light.

shaped as snakes' heads, and there is a kink in the middle of each. As the burials in cemetery " A " are approximately of the same period as the upper levels of Mohenjo-daro, we have yet another link between the two countries, though we cannot yet say which country borrowed from the other; bracelets of such a shape can hardly have been of independent origin, and they will no doubt one day prove invaluable in fixing the dates of new sites in both Sumer and India.

The object of this queer kink is difficult to explain, for most of these bracelets are too small to have been worn on the upper part of the forearm, where the kink might have nestled in the bend of the elbow to prevent the bracelet from turning round.

The numbers of pottery, stone and metal jars with an extremely narrow mouth and very limited capacity lead us to surmise that some of them at least held a cosmetic to embellish the eyes, which was a universal custom in ancient times. That other cosmetics were used is indicated by red ochre being found at Mohenjo-daro in a cockle-shell and the presence of lumps of red ochre in grave utensils at Nāl.[1] We have, therefore, some reason for supposing that the women of the Indus valley, and perhaps the men also, made up their faces. Unfortunately, only one sample of eye-paint has been found; this was galena which was contained in a little alabaster pot.[2] For some reason or other, much of the black eye-paint that was used has completely disappeared, possibly because it was made of lamp black mixed with a fat[3] and had not a metal base. Malachite was apparently never used as a cosmetic.

A number of the heart-shaped pieces of shell inlay described on p. 588, and illustrated in Pl. CVII, 5, 15, have already been compared by Frankfort with pieces of bone inlay of similar shape from Tell Asmar.[4] Frankfort suggests that these bone inlays were used on statuettes; if this were the case, it would be very interesting in view of the possibility, as I have already suggested, of this particular shape being intended to represent an ear. If so, the inlays on the Mesopotamian statuary may have been intended for another purpose than decoration, that is, the statue so adorned might have been provided with other means of hearing in addition to its ordinary two ears. We have, however, no evidence from Mohenjo-daro that statuettes were ever decorated with inlay.

As mentioned on p. 582, cowries seem not to have been worn as amulets by the people of Mohenjo-daro, since one only has been found at that site. In Southern Balūchistān, however, amongst a fine series of pottery female figures from Mehī,[5] several are represented as wearing these shells as pendants to very elaborate necklaces; for instance, figures Mehī III. 6.17. and Mehī I. 3. 4. a. wear these shells almost in profusion.

It is, of course, appropriate that figures of the Mother-goddess should be represented as wearing cowries, for this shell was regarded from very early

[1] *Mem. Arch. Surv. Ind.*, No. 35, p. 29.

[2] *Mohenjo-daro and the Indus Civilization*, p. 691.

[3] As in modern Egypt, where the shells of almonds and certain resins are burned for this purpose: Lane: *Modern Egyptians*, I.

[4] *Tell Asmar, Khafaje and Khorsabad*, II, pp. 50-2, fig. 32.

[5] Stein, *An Archæological Tour in Gedrosia*, pl. XXXI.

times as a fertility charm and it was supposed to assist in some way in the process of parturition.[1] It may, indeed, appear amongst the ornaments worn by figurines yet to be found at Mohenjo-daro; and possibly it is actually represented on those already found, but cannot be identified as such.

What appears to be a trefoil motif on a bone stud or seal from Mehī-damb in Southern Balūchistān[2] may be the first example of this motif, so well-known at Mohenjo-daro, that has been found in that province.

It is possible that the trefoil motif was derived from three intersecting circles, as was the now well-known design on the pottery and faience studs and other ornaments (Pls. C, 12; CVI, 35; CVII, 14, etc.)[3] from the intersection of four circles. A very good example of the evolution of a trefoil in this manner actually appears on a Cretan seal.[4] I have before suggested that the trefoil had as its origin the leaf of a plant such as clover but in view of the fondness of the Indus Valley people for the intersecting circle motif, the above theory now appears to me more likely to be correct.

The figure-of-eight motif occurs twice amidst the trefoils on the robe of the well-known steatite statue from Mohenjo-daro.[5] It has lately been found by Mr. M. S. Vats at Harappā as a silver ornament inlaid with steatite beads which are capped with gold.[6] Mr. Vats also notes its occurrence on a braid of hair on a pottery figurine from the same site.[7] From its use in jewellery and its close association with the trefoil pattern on the dress of a figure which is generally supposed to be that of a deity, we may now, I think, safely assume that this figure-of-eight motif had a religious significance and, presumably, some amuletic property also. That it was supposed to have some magical power is also to be inferred from the intertwining patterns that, as already mentioned, are painted at the present day on the walls in Bengal and the Madras Presidency, and also powdered on the ground in front of houses. With the other twists and interlacing patterns that are found on beads and amulets at Mohenjo-daro (Pls. LXXXII, 3; XC, 21–4), this particular motif may have been a symbol of longevity.

Beck has shown that this motif appears only on the earliest etched carnelian beads of Sumer,[8] as in the Indus valley. Though I have been unable to find it in the early art of Persia, it appears on two carved plaques from a Sassanian palace at Tepe Hissar, on which a stag and a doe are represented as either

[1] Jackson, *Shells as Evidence of the Migrations of Early Cultures*, pl. XI, 133.

[2] Stein, *An Archæological Tour in Gedrosia*, pl. XXXI, Mehī, III, 6, 8.

[3] It is noteworthy that this same design is to be seen on an etched carnelian bead from Ur (Woolley, *Royal Cemetery*, pl. 133). This certainly suggests that these etched carnelian beads were actually manufactured in India, for the divided circle design seems foreign to Sumer.

[4] F. Matz, *Die Frühkretischen Siegel*, pl. VII, fig. 10. A Hittite seal actually of trefoil shape is illustrated in pl. IV, fig. 10.

[5] *Mohenjo-daro and the Indus Civilization*, pl. XCVIII, 2.

[6] *Ann. Rep. Arch. Surv. Ind.*, 1928-9, p. 76; pl. XXX (*d*).

[7] *Ibid.*

[8] *Antiquaries Journal*, vol. XIII, pl. LXXI; also see Woolley, *Royal Cemetery*, pl. 133, pp. 366-75.

smelling or eating an object of this shape. In this case the motif is more elaborate than are the earlier representations found elsewhere, and it looks as if it were made of rope.[1]

As represented on these Sassanian plaques, the object is too small to be a partitioned manger, as I have suggested the object with three compartments may be that appears below the buffalo on Seal 279 (p. 330). On the Sassanian plaques it represents neither a flower nor a bush as its shape is much too regular, and the only meaning that I can attach to it is that it is a hobble, and that the animals are shown as inspecting glorified symbols of their own captivity.[2] A piece of twisted rope, it might seem, is a curious object to have been venerated as magical in early times in India or elsewhere; and yet cord figures-of-eight tied together in groups were, and may still be, used in Danger Island, Oceania, to catch the souls of enemies or of sick men,[3]—which is certainly a form of magic.

Of other examples of this motif, there is one from Greece, on the sarcophagus from Klazomenai now in Berlin.[4] That the motif has survived down to modern times in India is shown by its appearing on a receptacle for skulls, used by certain head-hunters in Assam where it must have some religious purpose, possibly to trap the soul belonging to the body represented by the skull to prevent it from annoying its captor.

In concluding this survey, I should like to recall that the peculiar light pink clay mentioned on pp. 175, 176, which as has been stated was rarely employed and only for vessels of unusual shape, has its counterpart among the pottery of the Jemdet Nasr Period found at Ur, and that it also occurs at Carchemish in North Syria.[5] It is impossible at the present juncture to state with certainty that the Indian specimens were importations, though I am convinced that one particular vessel made of this special clay which was found in the earlier excavations at Mohenjo-daro came from abroad.[6] It is conceivable that ordinary clays, wherever they occur, may after refinement come to resemble one another closely; and the existence of similarities between the fabrics of wares found at Carchemish and Ur on the one hand and the Indus valley on the other is, without expert examination, by no means conclusive proof of common origin.

Another jar from Mohenjo-daro (Type F) (Pl. LV, 26) made of this pink ware is in shape not at all unlike certain vessels of the Uruk Period found at Ur: the latter were, however, made either of black burnished or of light grey clay,[7] both of which fabrics are found at Mohenjo-daro (pp. 174, 175).

[1] Schmidt, *Tepe Hissar Excavations*, 1931, pl. CLXVI. Univ. Mus., Philadelphia.

[2] Rope hobbles of this form are very commonly used for donkeys in Egypt to-day.

[3] *Handbook to Ethnographical Collections*, British Museum (1925), p. 33, fig. 32; pp. 171-2. This device is also arranged in groups in the jewellery of Queen Shub-ad: *Antiquaries Journal*, vol. VIII, pl. LXVIII, fig. 3. See also Ward, *Seal Cylinders of Western Asia*, p. 320, fig. 1019. A group arrangement of the motif occurs as a hieroglyphic sign which in the Old Kingdom was an ideogram for a hobble: Gardiner, *Egyptian Grammar*, p. 508 (16).

[4] Swindler, *Ancient Painting*, fig. 221, pp. 131-4. Stated to be of Ionian work and dated from the VIIth. to VIth. cent. B. C.

[5] Woolley, *The Development of Sumerian Art*, pp. 50, 51.

[6] *Mohenjo-daro and the Indus Civilization*, pl. LXXXIX, 1; p. 322.

[7] *Development of Sumerian Art*, pl. 10, d, e.

The examples of "reserved slip" technique (p. 184), all of which were found in the lower strata and in such small fragments that the original shapes of the vessels cannot be ascertained, can with more certainty be regarded as having been introduced from outside. This technique, as Woolley points out,[1] is known at both Ur and Carchemish. It seems hardly probable that it originated independently in India, Sumer and Syria, and we may, with Woolley, look to Anatolia as its probable source.

It is then to the Uruk ware that the Indus pottery shows the closest affinities, a fact which taken in conjunction with the other evidence now available, seems to suggest that the Indus Valley civilization had some connection with the Uruk culture of Sumer. According to Woolley these Uruk people, or peoples,[2] were invaders from the north; and it may well be that a section of them also entered India in the remote past, bringing with them a culture that developing in a different milieu, and perhaps combined with an indigenous culture, produced the civilization that culminated in the great cities of Mohenjo-daro and Harappā.[3]

[1] *Development of Sumerian Art*, pl. 11, c, d; pp. 50, 51.

[2] *Op. cit.*, pp. 51, 120. These are considered to be two races, one from Anatolia and the other from North Syria; whether they came in together or separately is not clear.

[3] Childe expresses the same opinion in his *New Light on the Most Ancient East*, p. 225.

APPENDIX I.

The Animals on the Seals.

A most useful contribution to the subject of the animals on the seals has lately been written by Heinz F. Friederichs,[1] who identifies the animal that most often appears on the seals, namely, that generally shown with its horns in profile (Pl. XCIV, 422), as *Bos primigenius*, Boj. He explains that the long powerful body, the tail ending in a tuft, and the horn which bends upwards, forwards, and upwards again, are those of the typical urus-ox (auroch ?).[2]

He also declares that this type of ox is not the only one portrayed on the seals and describes another animal with a shorter body, longer legs, and not so strongly curved a horn. This horn, he states, is characteristic of *Bos namadicus*, Falc., a middle-Asiatic species of the urus-ox that was once found in India, and has been recognised in the bone-remains from Anau.[3]

Friederichs' identification of certain stone and pottery models of bulls (Pls. LXXIX, 24, 30)[4] as a type of *Bos primigenius* cannot, I think, be substantiated. The bull models in the round have an entirely different type of head from those of the urus-like animals on the seals. Unfortunately, the horns of nearly all these models are missing, but a perfect example is illustrated in Pl. LXXVIII, 5, and it seems reasonable to assume that the broken specimens bore the same type of horn as the better preserved one, which, from its crudeness, may have been the work of a child. This particular model of an ox, together with those in Pl. LXXIX, 24, 30, appears to me to resemble more closely the short-horned bull of the seals (Pl. LXXXV, 123, etc.), a type which Friederichs identifies as the wild gaur (*Bos frontalis gaurus*, H. Sm.).[5] The horns, unlike those of the long-horned species, do not project forwards, except slightly at the extreme tip.

Friederichs also concludes from the shape of the horns and from the markings round the head and neck that both *Bos primigenius* and *Bos namadicus* were under the control of man; not necessarily domesticated, but held captive for some religious reason.[6] He cites as a proof of this captivity that a crib and stable-rack always appear before these animals on the seals. On the other hand, the variation in the shaggy hair on head, neck and breast suggests to him that the animals may have been domesticated for a considerable time, as shown by the presence on the seals of beasts of neither the pure *Bos primigenius* nor the

[1] *Der Alte Orient*, vol. 32, pts. 3, 4, pp. 1-20.

[2] *Mohenjo-daro and the Indus Civilization*, Seal 38.

[3] *Der Alte Orient*, pp. 7, 8. See Duerst in Pumpelly, *Explorations in Turkestan* (1908), vol. 2, pp. 359-76. For one of the seals used by Friederichs to illustrate this particular animal, see *Mohenjo-daro and the Indus Civilization*, pl. CIII, 15.

[4] The model referred to is illustrated in pl. XCVII, 23, of *Mohenjo-daro and the Indus Civilization*.

[5] *Der Alte Orient*, pp. 14, 15.

[6] *Op. cit.*, p. 9.

Bos namadicus type, but showing the characteristics of both forms, thus indicating a cross between the two. Further, the strong withers characteristic of the wild urus-ox are very seldom shown on the seals.[1]

With reference to the supposed cult-object always to be seen in front of these urus-bulls, Friederichs explains the lower receptacle as a crib and the upper one as a stable-rack, while the upward projecting lines from the edge of the lower basin, which Marshall takes to be the flames of an incense-stand, he says represent the fodder.[2]

I do not think, however, that this particular object can be so easily explained, because, as I have pointed out elsewhere, it is carried in procession, not only with the animal with which it is always associated but even by itself, on certain amulets from Harappā.[3]

Friederichs also identifies two species of humped oxen on the seals. The beast illustrated in Pl. XCIX (C), with giant horns and strongly curved forehead, he compares with the zebu of Amrat-Mahal, and a second variety with shorter legs he regards as the Gujarāt species. I must confess I cannot always see this distinction between the two animals, and I would refer the reader to the seals in the German publication.[4]

The Brāhmani zebu, according to Friederichs, does not appear on the seals from Mohenjo-daro, nor presumably on those from Harappā though it is shown on a sherd from Nāl.[5]

Finally, the lack of a manger before these zebus is explained as being due to their domestication which would make such a symbol unnecessary; he suggests alternatively that the animals were perhaps reared in pastures where a manger would be superfluous.

The crib or manger which appears on the seals, in front of the buffalo (*Bos bubalis*, L.) is thought by Friederichs to be a proof that the animal was domesticated. The great horn typical of the wild species need not necessarily indicate that this buffalo was untamed, for, as he points out, wild buffaloes are mated with tame ones in India to-day, and the characteristics of both parents appear in their progeny.[6]

With regard to the elephant (*Elephas indicus*, Bl.) portrayed on the seals, Friederichs states that this is typical of the Indian species. The two processes at the end of the trunk which only appear in some cases[7] he declares are also

[1] *Der Alte Orient*, pp. 10, 11.

[2] *Mohenjo-daro and the Indus Civilization*, pls. XIII, 22; CIV, 38; I can only find two examples showing these points, on a seal from Mohenjo-daro and another from Harappā. I would prefer to regard them as the spines of basket-work.

[3] *Op. cit.*, pl. XIII, 18, 19. We have many examples of food-trays associated with sacred hawks on the nome-standards of ancient Egypt.

[4] *Der Alte Orient*, pl. 2, fig. 4. For the same seals, see *Mohenjo-daro and the Indus Civilization*, pl. CXI, 333, 338.

[5] Hargreaves, *Mem. Arch. Surv. Ind.*, No. 35, pl. XVII, 59. *Der Alte Orient*, p. 11, pl. 2, fig. 5.

[6] *Der Alte Orient*, p. 14.

[7] *Mohenjo-daro and the Indus Civilization*, p. 388, seals 367, 371, 372, 534, 535.

characteristic of the Indian elephant, although the animal's habit of concealing one of them by pursing it up makes it appear less pronounced than is the case with the African animal.[1] He does not take the absence of a manger before this animal to mean that they were not domesticated, for he regards them as walking and thus needing no crib. Close inspection of the seals certainly shows that in some cases at least one of the hind-legs of the animal is definitely raised, a point which had not been observed before.[2]

The absence of cows both on the seals and as models in pottery or stone—a contrast with the finds at Al-'Ubaid, where both cows and calves appear—is explained by the possibility that they were kept in stalls owing to their wildness. The presence of the manger before such beasts as the gaur, buffalo, tiger, and rhinoceros may, therefore, indicate that these animals were kept under restraint, while the zebu, sheep, goat and elephant, being more domesticated, are without this symbol, except for isolated instances in the case of the last-named animal.[3]

Friederichs identifies an animal on one of the seals (Pl. XCIX, (A)) as a sheep and compares it with the old Egyptian sheep (*Ovis aries palaeoaegypticus*, Gaill. et Duerst), another name for which, apparently is *Ovis longipes valaeoaegypticus*. I do not follow him in this interpretation, however, as the Egyptian sheep was from the earliest times always portrayed with a long tail.[4] The animal on the seal has the short, upturned tail of a goat, and for this reason I prefer to class it as such. But, as with so many of the objects dealt with in this book, certainty of interpretation can only come with further excavation and the unearthing of a great many more examples.

[1] *Der Alte Orient*, p. 18.

[2] *Op. cit.*, p. 19, *Mohenjo-daro and the Indus Civilization*, pl. CXII, 365, 372, 375; and in the present book, seals 59, 171, 512.

[3] *Der Alte Orient*, pp. 10, 11.

[4] Capart, *Primitive Art in Egypt*, p. 236, fig. 175.

APPENDIX II.

RELATION TO EGYPTIAN AND SUSIAN WEIGHTS

BY

A. S. Hemmy, B.A., M.Sc.

Since Chapter XVII was written, two references to the Indus system of weights have been made which call for consideration.

In his book *Measures and Weights*[1] Sir Flinders Petrie has made the definite statement that the Beqa is found in Mohenjo-daro, whilst Col. Belaiew in his examination of weights found by the French expeditions to Susa from 1921 to 1933,[2] identifies 40 out of 424 of them as belonging to the Indus system. As I have expressed the opinion above that no evidence is apparent that the Indus system is related to the systems of other countries, it is perhaps desirable to make a closer examination of the matter.

In considering the variation of weights which is found, the view I take is that, whilst cases of deliberate fraud are rare, the balances used in those days were of primitive construction and only capable of rough weighing. Consequently, though the standards kept might be artistically and carefully finished, they would not be consistent amongst themselves according to our modern scientific ideas of accuracy. This is clearly shown in the ten exquisitely finished weights in the British Museum found at Erech, Iraq, and examined by M. Thureau-Dangin.[3] So, by the time copies of copies had been repeated several times, we might get considerable variation in the resultant weights. As the errors would be fortuitous, provided a sufficiently large number of weights are examined, the values of the units derived therefrom will be distributed according to "The Law of Errors," $y=ke^{-h^2x^2}$, where y is the number of observations with error x and h and k are constants. Collating the whole series of weights recorded to date at Mohenjo-daro and Harappā, the following examination has been made. Arranging the weights in order of value and dividing by their ratio in terms of Group F, a group which gives a unit more comparable with other systems than does Group A, we get the values of the unit derived from this particular weight. In a very few cases there is some uncertainty as to the most suitable ratio to choose but the error resulting is insignificant. All weights found in good condition have been included (*vide* Table X, pp. 676 to 678).

The whole range of values is divided up into steps of ·05 gm. and the number of examples within the range of each step is counted. In Table VIII is given the result. Col. 1 gives the lower limit of the step, *i.e.*, step 13·50

[1] Flinders Petrie. *Measures and Weights*, London, 1934, p. 21.

[2] *Memoirs de la Mission Archéologique de Perse*, vol. XXV, p. 134 et seq.

[3] *Revue d'Assyriologie*, XXIV, 1927, p. 69.

ranges from that number to 13·55. Col. 2 gives the number of weights with units within the range.

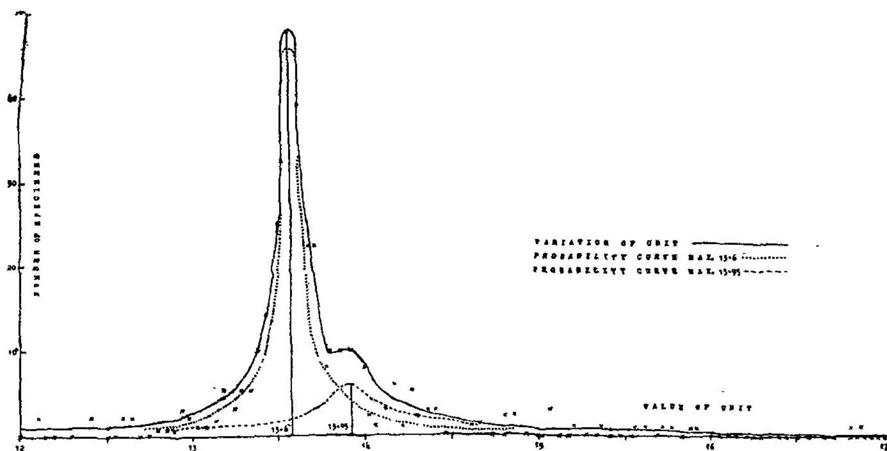
TABLE VIII.—Frequency of Unit.

1 Step.	2 No. of Spec.	1 Step.	2 No. of Spec.	1 Step.	2 No. of Spec.	1 Step.	2 No. of Spec.
17·95	1	14·70	1	13·75	22	12·90	1
17·70	1	14·65	1	13·70	22	12·85	1
17·60	1	14·55	2	13·65	39	12·80	1
17·15	1	14·45	3	13·60	48	12·65	2
16·75	1	14·40	3	13·55	32	12·60	2
16·60	1	14·35	2	13·50	25	12·45	1
15·95	1	14·30	5	13·45	14	12·40	2
15·90	1	14·25	1	13·40	10	12·35	1
15·80	2	14·20	6	13·35	5	12·25	1
15·75	1	14·15	3	13·30	5	12·10	2
15·65	1	14·10	1	13·25	3	12·05	1
15·60	1	14·05	3	13·20	5	10·15	1
15·40	1	14·00	8	13·15	2	10·10	1
15·25	1	13·95	10	13·10	1	10·00	1
15·10	3	13·90	10	13·05	1		
14·90	2	13·85	10	13·00	2		
14·85	2	13·80	8	12·95	3		

Omitted steps have no representatives.

In the Figure the results are plotted out, the abscissa being the value of the unit and the ordinate the number of specimens with unit within the corresponding range. Values above 17 or below 12 have not been included.

FIGURE.—Curve showing distribution of values of Indus Unit.



There is a surprisingly sharp maximum at 13·60, *i.e.*, for the range 13·60 to 13·65. This shows the great accuracy in general of the Indus weights, remarkable at such a date. There is a small secondary maximum at 13·95.

In the figure the continuous line gives a smoothed representation of the actual observations, the dotted line is a line drawn according to the Law of Errors, the Probability curve corresponding to the maximum value 13·60. The broken line is obtained by plotting the differences of the ordinates of the other two. It forms a Probability Curve corresponding to a maximum about 13·95. It is much broader than the other. The smaller area included shows that examples are much less frequent, the broader slope shows that the examples are on the whole less accurate. The evidence therefore is that the great majority of the specimens were made to suit a standard of 13·62 gms.,[1] that the variation from that standard is slight, that it is fortuitous; that there is also a less common and less accurate set of weights made to fit a standard of 13·95 gms. The residue of the observations is spread irregularly over a wide base, and, though a mean value of about 15 gms. can be observed, the corresponding maximum value is so small and the deviations so nearly of the same order that little importance can be attached to it. The most reasonable hypothesis to make of these outlying weights is that they are merely inaccurate copies. There is no indication that they are imported weights or copies of imported standards.

Analysis of the Harappā weights separately, so far as a limited number can do so, shows exactly the same features, the same two maxima in much the same proportions. There is no tendency for the secondary maximum to favour one of the localities. The contiguity of the two maxima shows that the secondary standard is merely a variant of the first and not independent. For some reason, a not particularly accurate copy of the main standard has been used as standard for a make of inferior weights.

The above analysis clearly confirms the hypothesis that the variation in the values of the weights is purely a fortuitous one about two neighbouring standards of local origin. In India, therefore, we have the advantage that we can study an ancient system of weights without the complication due to conflicting systems being co-existent.

2. In Egypt it was quite otherwise. Sir Flinders Petrie has found that there are no less than eight systems: the *Peyem*, ranging from 7·4 to 8·1 gm., the Daric from 8·1 to 8·6 gm., the *Stater* from 8·6 to 9·0 gm., the Qedet from 9·0 to 9·6 gm., the *Necef* from 9·6 to 11·0 gm., the *Khoirine* from 11·0 to 12·2 gm., the *Beqa* from 12·2 to 14·0 gm., and the *Sela* from 13·0 to 14·8 gm. Most of these standards were in existence by the time of the pyramid builders, which corresponds roughly to the Mohenjo-daro period. It is inevitable that the Indus standard should be within the range of one or other of these. Until, therefore, independent evidence is forthcoming that there were trade or other relations between Egypt and Mohenjo-daro, it is hardly justifiable to make any definite assertion that the units of weights of the two countries have a common origin.

3. Col. N. T. Belaiew has examined a series of 424 weights found between 1921 and 1933 at Susa of date about 2,000 B. C., and he considers the following 40 to be of Mohenjo-daro type:

[1] A subsequent analysis (*vide*, *Ancient Egypt*, Dec. 1935, p. 88) carries the determination of the standard to another decimal place, giving it as 13·625 gm. (210·2 gn.)

TABLE IX.—Weights at Susa of Indus Type.

1	2 In M. D.	3 Units.	4 In Darics.	5	1	2 In M. D.	3 Units.	4 In Darics.	5
Weight.	Ratio.	Value.	Ratio.	Value.	Weight.	Ratio.	Value.	Ratio.	Value.
5243 gm.	375	13·98	600	8·74	3·25	¼	13·00	⅓	9·75
2695	200	13·48	320	8·42	3·23	¼	12·92	⅓	9·69
1381	100	13·81	160	8·63	2·375	⅙	14·25	¼	9·50
540·0	40	13·50	60	9·00	2·335	⅙	14·01	¼	9·34
526·15	37·5	14·03	60	8·77	2·328	⅙	13·97	¼	9·31
353·3	25	14·13	40	8·83	2·30	⅙	13·80	¼	9·20
249·0	20	12·45	30	8·30	2·30	⅙	13·80	¼	9·20
249·0	20	12·45	30	8·30	2·25	⅙	13·50	¼	9·00
172·08	12·5	13·77	20	8·60	2·23	⅙	13·38	¼	8·92
13·58	1	13·58	3/2	9·05	2·200	⅙	13·20	¼	8·80
8·81	2/3	13·22	1	8·81	2·200	⅙	13·20	¼	8·80
7·065	½	14·13	1	7·06	2·218	⅙	13·31	¼	8·87
6·87	½	13·74	¾	9·16	2·216	⅙	13·30	¼	8·86
6·38	½	12·76	¾	8·64	1·867	⅛	14·92	¼	7·47
3·50	¼	14·00	½	7·00	1·782	⅛	14·26	1/5	8·91
3·327	¼	13·31	⅓	9·98	1·724	⅛	13·69	1/5	8·62
3·30	¼	13·20	⅓	9·90	1·656	⅛	13·24	1/5	8·28
3·262	¼	13·05	⅓	9·79	1·650	⅛	13·20	1/5	8·25
3·261	¼	13·04	⅓	9·78	0·855	1/16	13·68	1/10	8·55
3·25	¼	13·00	⅓	9·75	0·800	1/16	12·80	1/10	8·00

The weights found at Susa form a very complex series running almost continuously from ·95 gm. to nearly 90 gm. before the first real break. An analysis of the whole series on the lines given above shows, as might be expected, that more than one unit is involved. There is a decided maximum at 8·2 gm., and a lesser one at 8·75 gm. These perhaps correspond to the light and heavy Babylonian shekel. Less marked are at least two other maxima, but none of these correspond with the Indus standard.

Turning to Table IX, we see that to weight 5243 is given the attribution of a ratio 375, to weight 526·15, the ratio 37·5, to weight 8·810, the ratio 2/3. These classes are not represented at Mohenjo-daro itself. Again, 10 of the 40 are given the ratio 1/6, although at Mohenjo-daro only 2 (Group C) out of nearly 360 weights belong to that class. It would be remarkable if the rarest of the classes at the site of origin should become the commonest in a foreign country. The fact that weights 2·30 and 2·25 are marked with four strokes is evidence that they are one quarter of some other weights, obviously the Shekel. The attribution of the ten weights of neighbouring value to Group C, for which the factor would be six, is consequently not justifiable. Again, weight 540·0 is marked with six strokes, showing that it is six times another weight, in this case ten shekels.

On the other hand, at Mohenjo-daro the two commonest classes are F with 91 examples, and G with 94, whereas of the Susian weights only one is attributed to class F and none to G. Further, in the 27 specimens of the usual classes, we find no tendency for the values of the unit to concentrate about the value 13·62. On the contrary, of the 27, 16 give values of the unit either above 14·0 or below 13·2, which an inspection of the graph shows to be the limits of common occurrence at the type site itself.

Columns 2 and 3 in Table IX give the ratios and unit values according to Col. Belaiew, in columns 4 and 5 the ratios and values in terms of the Daric unit, the shekel. The values of the shekel obtained are at least as good as the calculated values of the Indus unit given in col. 3. At the same time, it is quite likely that some of them would be better expressed in terms of some other unit certainly represented at Susa. The point is that there is no need to go to the Indus to explain these weights.

Col. Belaiew also tentatively assigns a number of weights to the "Exceptional Series" discussed on p. 591 of Sir John Marshall's Report on Mohenjo-daro. There I tentatively put forward the idea of a separate system with respect to seven weights which were isolated from the general system. The examination of the additional weights has not increased the specimens of this tentative system whilst it has diminished the isolation. As the system has been abandoned, it is unnecessary to discuss the Susian weights particularly as they have been explained by Col. Belaiew himself in terms of the Peyem as well, or better.

TABLE X.—Unit Values of Indus Weights.

1 Weight.	2 Ratio to F.	3 Value of Unit.	1 Weight.	2 Ratio to F.	3 Value of Unit.	1 Weight.	2 Ratio to F.	3 Value of Unit.
11467·6	800	14·33	54·617	4	13·65	28·020	2	14·01
10262		12·83	54·611		13·65	27·85		13·92
6903	500	13·81	54·510		13·63	27·825		13·91
5556	400	13·89	54·500		13·62	27·75		13·88
2792	200	13·96	54·496		13·62	27·749		13·87
2735·8		13·68	54·452		13·61	27·68		13·84
2656		13·28	54·45		13·61	27·667		13·83
2576		12·88	54·45		13·61	27·575		13·79
1446	100	14·46	54·400		13·60	27·527		13·76
1431·7		14·32	54·32		13·58	27·515		13·76
1375		13·75	54·297		13·57	27·50		13·75
1375		13·75	54·080		13·52	27·498		13·75
546·7	40	13·67	54·077		13·52	27·496		13·75
275·2	20	13·76	54·076		13·52	27·462		13·73
274·9		13·74	54·05		13·51	27·45		13·72
264·5		13·22	53·986		13·49	27·440		13·72
258·5		12·92	54·01		13·50	27·437		13·72
185·5	12·5	14·84	53·820		13·46	27·43		13·71
174·5		13·96	53·627		13·41	27·40		13·70
151·4	10	15·14	52·861		13·22	27·40		13·70
137·8		13·78	52·776		13·19	27·352		13·68
136·75		13·68	49·73		12·43	27·35		13·68
136·5		13·65	47·30		11·88	27·35		13·68
136·25		13·62	40·402		10·10	27·336		13·67
136·20		13·62	33·553	2	16·78	27·333		13·67
136·06		13·61	31·964		15·98	27·33		13·66
135·86		13·59	30·813		15·41	27·326		13·66
135·50		13·55	29·225		14·61	27·30		13·65
135·38		13·54	29·00		14·50	27·30		13·65
135·28		13·53	28·844		14·42	27·295		13·65
134·59		13·46	28·693		14·35	27·293		13·65
133·50		13·35	28·64		14·32	27·29		13·64
129·50		12·95	28·620		14·31	27·28		13·64
123·86		12·39	28·470		14·24	27·276		13·64
96·476	8?	12·06	28·463		14·23	27·25		13·62
56·872	4	14·22	28·437		14·22	27·25		13·62
55·900		13·98	28·366		14·18	27·229		13·61
55·052		13·76	28·21		14·10	27·227		13·61
54·653		13·66	28·083		14·04	27·22		13·61

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1 Weight.	2 Ratio to F.	3 Value of Unit.	1 Weight.	2 Ratio to F.	3 Value of Unit.	1 Weight.	2 Ratio to F.	3 Value of Unit.
27·22	2	13·61	13·917	1	13·92	13·373	1	13·37
27·21		13·60	13·914		13·91	13·372		13·37
27·203		13·60	13·91		13·91	13·37		13·37
27·200		13·60	13·90		13·90	13·284		13·28
27·177		13·59	13·873		13·87	13·113		13·11
27·174		13·59	13·87		13·87	13·079		13·08
27·164		13·58	13·85		13·85	8·850	½ ?	17·70
27·150		13·58	13·81		13·81	7·900	"	15·80
27·15		13·57	13·79		13·79	7·310	½	14·62
27·139		13·57	13·78		13·78	7·296		14·59
27·120		13·56	13·768		13·77	7·27		14·54
27·12		13·56	13·766		13·77	6·98		13·96
27·117		13·56	13·757		13·76	6·957		13·91
27·113		13·56	13·71		13·71	6·932		13·86
27·103		13·55	13·709		13·71	6·92		13·84
27·10		13·55	13·70		13·70	6·91		13·82
27·10		13·55	13·70		13·70	6·90		13·80
27·10		13·55	13·697		13·70	6·89		13·78
27·096		13·55	13·690		13·69	6·880		13·76
27·086		13·54	13·69		13·69	6·877		13·75
27·070		13·54	13·680		13·68	6·87		13·74
27·068		13·53	13·680		13·68	6·87		13·74
27·06		13·53	13·677		13·68	6·87		13·74
27·05		13·53	13·670		13·67	6·862		13·72
27·05		13·52	13·67		13·67	6·85		13·70
27·01		13·50	13·67		13·67	6·84		13·68
26·995		13·50	13·666		13·67	6·84		13·68
26·93		13·46	13·660		13·66	6·830		13·66
26·92		13·46	13·656		13·66	6·83		13·66
26·884		13·44	13·65		13·65	6·83		13·66
26·88		13·44	13·642		13·64	6·824		13·65
26·85		13·42	13·64		13·64	6·82		13·64
26·836		13·42	13·64		13·64	6·82		13·64
26·79		13·40	13·625		13·62	6·817		13·63
26·597		13·30	13·621		13·62	6·802		13·60
26·480		13·24	13·62		13·62	6·80		13·60
26·312		13·16	13·62		13·62	6·791		13·58
26·050		13·02	13·62		13·62	6·79		13·58
25·354		12·68	13·62		13·62	6·781		13·56
25·31		12·66	13·62		13·62	6·78		13·56
24·50		12·25	13·62		13·62	6·779		13·56
20·370	?	10·19	13·62		13·62	6·774		13·55
17·970	1 ?	17·97	13·610		13·61	6·77		13·54
17·183		17·18	13·61		13·61	6·769		13·54
16·640		16·64	13·600		13·60	6·76		13·54
15·937		15·94	13·60		13·60	6·76		13·52
15·264	1	15·26	13·60		13·60	6·73		13·42
14·94		14·94	13·594		13·59	6·66		13·36
14·90		14·90	13·589		13·59	6·65		13·32
14·59		14·59	13·58		13·58	6·600		13·20
14·46		14·46	13·575		13·58	6·31		12·60
14·41		14·41	13·555		13·56	6·305		12·62
14·35		14·36	13·54		13·54	3·96	¼	15·81
14·290		14·29	13·512		13·51	3·93		15·74
14·188		14·19	13·50		13·50	3·90		15·62
14·177		14·18	13·49		13·49	3·780		15·10
14·094		14·09	13·459		13·46	3·604		14·42
14·028		14·03	13·456		13·46	3·556		14·22
14·019		14·02	13·451		13·45	3·554		14·22
14·001		14·00	13·450		13·45	3·520		14·02
13·972		13·97	13·447		13·45	3·51		14·08
13·970		13·97	13·440		13·44	3·49		13·94
13·954		13·95	13·407		13·41	3·484		13·96
13·95		13·95	13·399		13·40	3·48		13·94

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1 Weight.	2 Ratio to F.	3 Value of Unit.	1 Weight.	2 Ratio to F.	3 Value of Unit.	1 Weight.	2 Ratio to F.	3 Value of Unit.
3·465	¼	13·82	3·362	¼	13·45	1·79	⅛	14·32
3·44		13·76	3·343		13·37	1·754		14·03
3·44		13·76	3·320		13·32	1·750		14·00
3·44		13·76	3·313		13·25	1·734		13·87
3·43		13·72	3·30		13·20	1·70		13·60
3·43		13·72	3·24		12·96	1·70		13·60
3·424		13·70	3·24		12·96	1·69		13·52
3·422		13·69	3·12		12·48	1·684		13·47
3·418		13·67	3·03		12·12	9·255	⅛ ?	10·04
3·414		13·66	2·33	⅙	13·98	0·98	1/16	15·68
3·405		13·62	2·07		12·42	0·928		14·85
3·394		13·60	1·891	⅛	15·13	0·879		14·06
3·39		13·56	1·86		14·88	0·87		13·92
3·39		13·56	1·835		14·68	0·867		13·87
3·381		13·52	1·815		14·52	0·813		13·01
3·38		13·52	1·81		14·48	0·550	1/32 ?	17·60

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